

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: MLT-118 & 118L Department: Clinical Lab Science
Course Title: Medical Laboratory Safety Semester: Spring Year: 2022

COURSE OBJECTIVES: The student will learn an overview of phlebotomy and specimen collection and the functions of the career with performance in specimen processing and phlebotomy. In the laboratory, the students will follow instructions and reproduce the methods to the instructor's satisfaction. Prerequisites: MLT-110, MLT-110L, MLT-112

Objectives/Competencies for Lecture

Course Objective	Competencies
Upon the completion of each lecture section, the student will be able to fulfill the section objectives as outlined in the assigned text and materials and/or defined by verbal instruction to the level identified in the MLT Program Matriculation Policy.	
Overview of Profession and Review of Safety	<ul style="list-style-type: none">▪ Define phlebotomy and describe phlebotomy services.▪ Explain the role and responsibilities of the phlebotomist.▪ List the professional competencies for phlebotomists.▪ List the skills necessary for effective communications.▪ Describe basic principles of quality and give examples of quality assessments for phlebotomy.▪ Paraphrase the importance of safety in phlebotomy and list all areas of phlebotomy where safety is used.▪ Apply the OSHA Blood-borne Pathogens standard to use in phlebotomy.▪ Describe safety equipment and practices used in phlebotomy.▪ Identify risk associated with phlebotomy and patient testing.• Explain risk management as it applies to phlebotomy procedures.
Cardiovascular system	<ul style="list-style-type: none">▪ Describe the basic function of the cardiovascular system.▪ Distinguish the characteristics of arterial, venous and capillary blood and vessels.▪ Name and locate the veins most commonly used for phlebotomy.▪ List the components of blood.▪ Identify the functions of blood cells and platelets.• Explain the difference between serum and plasma.
Blood Specimen processing and handling	<ul style="list-style-type: none">▪ Describe the importance of proper patient identification.▪ List methods of proper patient identification.▪ Describe the essential elements in completing a requisition form.▪ Interpret a specimen requirement as written in standard operating procedure format.

	<ul style="list-style-type: none">▪ Describe the requirements of specimen collection as it relates to timed and fasting specimens.▪ List and explain the impact of improper specimen collection.▪ Describe proper specimen labeling procedures.▪ Interpret computer generated labels.▪ List the basic specimen handling guidelines for maintaining specimen integrity.▪ Describe which blood constituents are photosensitive or thermolabile.▪ Name three methods commonly used to transport specimens.▪ List reasons for specimen rejection.
Blood Collection Equipment	<ul style="list-style-type: none">▪ Describe the latest phlebotomy safety supplies and equipment and state the use of each.▪ Identify the various supplies that should be carried on a specimen collection tray when a skin puncture specimen must be collected.▪ Identify the types of venipuncture tubes and define the purpose and use of the additives/anticoagulants. <p>Describe the difference between the venipuncture and skin puncture equipment.</p>
Patient Identification and Communication	<ul style="list-style-type: none">▪ Describe the steps a health care worker should take in preparing him- or herself for a venipuncture procedure▪ Describe fears or concerns that children in different developmental stages might have toward the blood collection process▪ Suggest techniques a health care worker may use to communicate effectively with a variety of patients; hearing impaired, culturally diverse, elderly, etc.▪ Describe the detailed steps in the patient identification process.▪ Troubleshoot solutions when information is missing during the identification process.
Proper venipuncture technique	<ul style="list-style-type: none">▪ Describe hand hygiene and gloving procedures before and after venipuncture.▪ Identify the most appropriate sites for venipuncture.▪ Describe how to apply a tourniquet and explain its effects on the venipuncture process.▪ Describe the decontamination process for a venipuncture and blood culture collection.▪ Describe the detailed steps of a venipuncture procedure.▪ Identify the order of draw for venipuncture tubes.▪ Explain phlebotomy procedure when using a syringe.▪ Explain the proper procedure for venipuncture when:<ul style="list-style-type: none">○ Using a winged infusion set○ Using a syringe○ Collection of blood cultures▪ Describe the importance of timed, fasting and STAT specimens.▪ Explain proper patient care during the entire phlebotomy process.• Identify the types of difficult draws and explain proper procedure for these situations.

<p>Proper capillary blood collection technique</p>	<ul style="list-style-type: none"> ▪ Define the purpose and proper collection technique of a capillary blood draw. ▪ Identify the proper sites for performing a skin puncture procedure. ▪ Identify equipment and its use for capillary collection. ▪ Explain why controlling the depth of the incision is necessary. ▪ List situations where capillary collection is performed.
<p>Special Collections/ Phlebotomy</p>	<ul style="list-style-type: none"> ▪ Discuss pre-analytical, analytical. and post-analytical considerations. ▪ In group format, read and analyze case studies related to phlebotomy and discuss the case study topic and the impact on laboratory testing and/or interpretation. ▪ Read and summarize major points of a current journal article that relates to phlebotomy. ▪ Identify the impact of new developments on this area of the laboratory or on patient care.
<p>Collection and processing of non-blood specimens</p>	<ul style="list-style-type: none"> ▪ Explain the importance of specimen collection, processing, and preparation. ▪ Cite the proper procedure for collection of common types of laboratory specimens including: <ul style="list-style-type: none"> ○ QA and patient identification ○ Collection techniques and equipment ○ Labeling ▪ Describe precautions used when handling laboratory specimens and the importance of these procedures. ▪ Explain the types of routine specimens that are analyzed in the laboratory and the proper collection techniques and equipment. ▪ Explain the proper conditions for transporting of laboratory specimens. ▪ List criteria used to accept or reject laboratory specimens

Objectives/Competencies for Laboratory

<p>Lab Safety, Orientation and Tour of Lab Identification of Patient and Obtaining Consent Tying a tourniquet</p>	<ul style="list-style-type: none"> ▪ Correctly identify all safety rules and equipment within the laboratory as they apply to phlebotomy ▪ Cite the important points of the bloodborne pathogen/ needlestick acts ▪ List the specific steps of the correct identification protocol for a patient in various scenarios ▪ Identify types of consent, and demonstrate an understanding of how to respond if consent is not given or is withdrawn ▪ Demonstrate the ability to effectively and politely communicate with a patient who has refused a procedure ▪ Identify and describe the use of all phlebotomy equipment. ▪ Demonstrate proper use of a centrifuge. ▪ Properly tie and release a tourniquet.
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	<ul style="list-style-type: none"> ▪ Identify and locate commonly used veins of phlebotomy by palpating.
Specimen processing/ Non-blood specimens	<ul style="list-style-type: none"> ▪ Explain the importance of specimen collection, processing, and preparation. ▪ Cite the proper procedure for collection of common types of laboratory specimens including: <ul style="list-style-type: none"> ○ QA and patient identification ○ Collection techniques and equipment ○ Labeling ▪ Describe precautions used when handling laboratory specimens and the importance of these procedures.
Venipuncture on an Artificial Arm	<ul style="list-style-type: none"> ▪ Properly select and assemble equipment for a venipuncture. ▪ Identify and locate by palpating commonly used veins of phlebotomy. ▪ Using a given checklist, demonstrate proper procedure for venipuncture using the evacuation system on simulated phlebotomy arms including labeling of blood specimens
Venipuncture on a Live Patient	<ul style="list-style-type: none"> ▪ Review Basic Venipuncture Procedure using video demonstration ▪ Using an instructor provided checklist, demonstrate proper venipuncture procedure with an evacuation system on a live patient. ▪ List the correct order of draw for multiple tube collections. ▪ Properly centrifuge and aliquot blood specimens. ▪ Demonstrate the procedure to properly “leave the patient” safely
Capillary Puncture	<ul style="list-style-type: none"> ▪ Identify and describe the use of all capillary draw equipment. ▪ Demonstrate preparation of child and parent for blood collection via roleplay ▪ Using an instructor provided checklist, demonstrate proper procedure for a capillary puncture ▪ Identify and describe the use of all pediatric venipuncture equipment.
Special Collections/ Specimen Processing	<ul style="list-style-type: none"> ▪ Explain the types of routine specimens that are analyzed in the laboratory and the proper collection techniques and equipment. ▪ Explain the proper conditions for transporting of laboratory specimens. ▪ List criteria used to accept or reject laboratory specimens