Clemson University
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Education & Training Plan
Phlebotomy Technician Certification Program with Externship

Student Full Name: _____

Start Date: _____ End Date: _____

Program includes National Certification & an Externship Opportunity
Mentor Supported

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Clemson University Program with Externship

Course Code:	CLEM-PH 07
Program Duration:	4 Months
Course Contact Hours:	375
Student Tuition:	$3,650.00

The Phlebotomy Technician Profession

The phlebotomist is a vital member of the clinical laboratory team, whose main function is to obtain patient's blood specimens by venipuncture and micro-collection for testing purposes. Phlebotomists are employed throughout the healthcare system including in hospitals, neighborhood health centers, medical group practices, HMO's, public health facilities, veteran hospitals, insurance carriers, and in other healthcare settings. The demand for phlebotomy technicians has increased substantially with the overall complexity of healthcare services and the risks of infectious disease. Current healthcare industry experts predict a 15% increase in phlebotomy jobs by 2030.

The Phlebotomy Technician Program

The Phlebotomy Technician Program prepares students to collect blood specimens from clients for the purpose of laboratory analysis. Students will become familiar with all aspects of blood collection and will review the skills needed to perform venipunctures safely. Also includes terminology, blood collection procedures, order of draw and other engaging topics. *Program also includes an optional clinical externship at a local healthcare provider!* This course covers the following key areas and topics:

- Process and procedures for collecting blood specimens for laboratory analysis
- All aspects of blood collection and related procedures
- The order of draw and Universal precautions

- Skills to perform venipunctures completely and safely
- Terminology and related anatomy and physiology

Education and National Certifications

- Students should have or be pursuing a high school diploma or GED.
- With the exception of **California where this program is NOT available**, there are no state approval and/or state requirements associated with this program.
- There are several National Certification exams that are available to students who successfully complete this program:
    - **NHA Certified Phlebotomy Technician (CPT) Exam**

Phlebotomy Technician Detailed Course Information:

- The history of Phlebotomy and the roles and responsibilities of a Phlebotomy Technician
- Laboratory operations (e.g. safety, quality control,), quality assurance, laboratory law, ethics and regulatory issues
- Anatomy and physiology of the circulatory system and anatomy of the hand, leg & foot – including arteries and veins
- Universal precautions – safety protocols, infection control and medical asepsis
- Specimen collection, processing, handling, documentation and transportation
- Venipuntcures and skin puncture practice, syringe practice, heel puncture, protocol, syringe draws, etc.

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National Certification

Students who complete the Clemson University Phlebotomy Technician program will be prepared to sit for the National Healthcareer Association (NHA) Phlebotomy Technician (CPT) national certification exam(s). In order to work as a Phlebotomy Technician, many states nationwide are requiring that learners achieve national certification prior to working in that state. Students who complete this program are encouraged to complete the practical/clinical externship option with their program. This comprehensive program is designed to prepare students to sit for National Healthcareer Association (NHA) Phlebotomy Technician (CPT) exam(s). Students who complete this program can and do sit for the National Healthcareer Association (NHA) Phlebotomy Technician (CPT) national certification exam(s) and are qualified, eligible and prepared to do so.

Externship / Hands on Training / Practicum

Although not a requirement, once students complete the program, they have the ability to participate in an externship and/or hands on practicum so as to practice the skills necessary to perform the job requirements of a professional in this field. Students will be assisted with completing a resume and/or other requirements necessary to work in this field. All students who complete this program are eligible to participate in an externship and will be placed with a participating organization near their location. The institution works with national organizations and has the ability to place students in externship opportunities nationwide.

Clemson University contact: If students have any questions regarding this program including national certification and externships **, they should call Salley Ouellette of Clemson University at | (864) 656-2200 or via email at palmer4@clemson.edu**

Note : No refunds can be issued after the start date published in your Financial Award document.

About Clemson University!

Clemson Online, a unit reporting directly to the Provost, works closely with leadership teams across the University to develop, market, and deliver top-quality courses and programs in blended and online formats. The office provides vision, leadership, coordination, and expertise in support of faculty design, delivery, and evaluation of technology-enhanced, blended, and fully online courses and instructional materials. Dynamic, transformative, and unique eLearning opportunities characterize Clemson's approach to online teaching and learning.

Our Mission: Clemson Online provides strategic leadership for online education, emphasizing innovative teaching and superior learning outcomes to maximize student success in 21st-century academic and professional contexts.

Our Vision: Clemson Online will define the public web-grant university through measurable achievements in online education, research, and service. The office is committed to pursuing strategic opportunities, providing supportive resources, promoting superior educational quality, and ensuring faculty involvement and responsibility in shaping Clemson's online future.

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Clemson University and Pearson Education

Clemson University's eLearning programs were developed in partnership with Pearson Education to produce the highest quality, best-in-class content and delivery necessary to enhance the overall student learning experience, boost understanding and ensure retention. Pearson Education is the premier content and learning company in North America offering solutions to the higher education and career training divisions of colleges and universities across the country aimed at driving quality education programs to ensure student success. Please visit us at **www.pearson.com** .

About Pearson Education

Welcome to Pearson. We have a simple mission: to help people make more of their lives through learning. We are the world's leading learning company, with 40,000 employees in more than 80 countries helping people of all ages to make measurable progress in their lives. We provide a range of education products and services to institutions, governments and direct to individual learners, that help people everywhere aim higher and fulfil their true potential. Our commitment to them requires a holistic approach to education. It begins by using research to understand what sort of learning works best, it continues by bringing together people and organizations to develop ideas, and it comes back round by measuring the outcomes of our products.

Phlebotomy Modules

PHLEBOTOMY PRACTICE AND QUALITY MANAGEMENT

- Define phlebotomy and identify healthcare professionals who perform phlebotomy procedures
- Identify the importance of phlebotomy procedures to the overall care of the patient
- List professional competencies for phlebotomists and key elements of a performance assessment
- List members of a healthcare team who interact with phlebotomists
- Describe the roles of clinical laboratory personnel and common laboratory departments/sections
- Describe healthcare settings in which phlebotomy services are routinely performed
- Explain components of professionalism and desired character traits for phlebotomists
- Describe coping skills that are used to handle stress in the workplace
- Define the difference between quality improvement and quality control
- Describe the basic tools used by a phlebotomist to participate in quality improvement activities
- Evaluate the effectiveness of the latest phlebotomy safety supplies and equipment in blood collection
- Describe preanalytical complications related to phlebotomy procedures and how they impact patient safety
- Explain how you should prevent and/or handle complications in blood collection
- List at least five factors about a patient's physical disposition that can affect blood collection
- List examples of substances that can interfere in a clinical analysis of blood constituents and describe methods used to prevent these interferences
- Describe how allergies, a mastectomy, edema, and thrombosis can affect blood collection
- List preanalytical complications that can arise with test requests and identification
- Describe complications associated with tourniquet pressure and fist pumping
- Describe how the preanalytical factors of syncope, petechiae, neurological complications, hemoconcentration, hemolysis, and intravenous therapy affect blood collection, and methods used to prevent these interferences

COMMUNICATION STRATEGIES FOR PHLEBOTOMISTS

- Apply methods for effective verbal and nonverbal communication, active listening, and written communication that take into account cultural competence and sensitivity in the workplace
- Describe the basic components of the medical record
- Provide examples of maintaining confidentiality and privacy related to patient information
- Identify potential clerical or technical errors that may occur during labeling or documentation of phlebotomy procedures
- Describe ways that healthcare workers may use computer systems to accomplish job functions

PROFESSIONAL ETHICS, LEGAL, AND REGULATORY ISSUES FOR PHLEBOTOMISTS

- Define basic ethical and legal terms and explain how they differ
- Describe types of consent used in healthcare settings, including informed consent and implied consent
- Describe how you can avoid litigation as it relates to blood collection
- Define standards of care from a legal and a healthcare provider's perspective
- Identify key elements of the Health Insurance Portability and Accountability Act (HIPAA)
- List key factors common to health professional liability insurance policies
- List common issues in lawsuits against healthcare providers and prevention tips to avoid lawsuits in phlebotomy

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INFECTION CONTROL FOR PHLEBOTOMISTS

- Explain the infection control policies and procedures that must be followed in specimen collection and transportation
- Identify the basic programs for infection control and isolation procedures
- Explain the proper techniques for handwashing, gowning, gloving, masking, double-bagging, and entering and exiting the various isolation areas
- Identify steps to avoid transmission of blood-borne pathogens
- Identify ways to reduce risks for infection and accidental needle sticks
- Describe measures that can break each link in the chain of infection
- Identify the steps to take in case of blood-borne pathogen exposure
- Discuss safety awareness and basic skills essential for all healthcare workers
- Explain the safety policies and procedures that must be followed in specimen collection and transportation
- Describe the safe use of equipment in healthcare facilities

SAFETY AND FIRST AID FOR PHLEBOTOMISTS

- Discuss safety awareness and basic skills essential for all healthcare workers
- Explain the measures that should be taken for fire, electric, radiation, mechanical, and chemical safety in a healthcare facility
- Describe the safe use of equipment in healthcare facilities
- List precautions that can reduce the risk of injury to patients

MEDICAL TERMINOLOGY AND ORGANIZATION OF THE HUMAN BODY

- Define medical terminology by using word elements such as roots, prefixes, and suffixes
- Define the differences among the terms anatomy, physiology, and pathology
- Describe the directional terms, anatomic surface regions, and cavities of the body
- Describe the role of homeostasis in normal body functioning
- Describe the structure of the human cell including the role of each organelle

ANATOMY AND PHYSIOLOGY OF ORGAN SYSTEMS

- Describe the role of homeostasis in normal body functioning
- Describe the purpose, function, and structural components of the major body systems
- Identify examples of pathologic conditions associated with each organ system
- List common diagnostic tests associated with each organ system

THE CARDIOVASCULAR AND LYMPHATIC SYSTEMS

- Describe the role of homeostasis in normal body functioning
- Identify examples of pathologic conditions associated with each organ system
- List common diagnostic tests associated with each organ system
- Define the functions of the cardiovascular and lymphatic systems, including the structures and functions of the heart
- Identify and describe the structures and functions of the heart
- List pathologic conditions and common laboratory tests associated with the cardiovascular and lymphatic systems

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- Trace the flow of blood through the cardiovascular system
- Describe the properties of arterial blood, venous blood, and capillary blood
- Compare the cellular and noncellular components of blood
- Describe the differences and similarities between whole blood, serum, and plasma
- Explain the structures and functions of different types of blood vessels
- Identify the veins most commonly used for phlebotomy procedures
- Define homeostasis, including its role in the basic process of coagulation and fibrinolysis

BLOOD COLLECTION EQUIPMENT

- Describe the following features for anticoagulants and additives used in blood collection: the various types available, their mechanisms of action on collected blood, examples of tests performed on these tubes of anticoagulants and additives, and the vacuum-collection tube color codes
- Describe the equipment used in specimen collection

PREANALYTICAL COMPLICATIONS CAUSING MEDICAL ERRORS IN BLOOD COLLECTION

- Describe preanalytical complications related to phlebotomy procedures and how they impact patient safety
- Explain how you should prevent and/or handle complications in blood collection
- List at least five factors about a patient's physical disposition that can affect blood collection
- List examples of substances that can interfere in a clinical analysis of blood constituents and describe methods used to prevent these interferences
- Describe how allergies, a mastectomy, edema, and thrombosis can affect blood collection
- List preanalytical complications that can arise with test requests and identification
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VENIPUNCTURE PROCEDURES

- Describe the steps a healthcare worker should take in preparing himself or herself for a venipuncture procedure
- List supplies and equipment used in a typical venipuncture procedure
- Describe detailed steps in the patient identification process and what to do if information is missing
- Describe methods for hand hygiene
- Identify the most appropriate sites for venipuncture and situations when these sites might not be acceptable
- Identify alternative sites for the venipuncture procedure
- Describe the process and time limits for applying a tourniquet to a patient's arm
- Describe the decontamination process and the agents used to decontaminate skin for routine blood tests and blood cultures
- Describe the steps of a venipuncture procedure by using the evacuated tube method, syringe method, and butterfly method according to the CLSI Approved Standard
- Describe the "order of draw" for collection tubes
- Describe how to react when the patient has fainted or experiences nausea, vomiting, or convulsions
- Explain why it is necessary to control the depth of the incision

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- Describe at least three sources of pre-examination error that can occur during: blood specimen handling, blood specimen transportation, and specimen processing or storage
- Name three methods commonly used to transport specimens
- Describe the function of a chain of custody, and the Custody and Control Form

CAPILLARY BLOOD SPECIMENS

- Describe the decontamination process and the agents used to decontaminate skin for routine blood tests and blood cultures
- Describe the "order of draw" for collection tubes
- Describe the reasons for acquiring capillary blood specimens
- Explain why capillary blood from a skin puncture is different from blood taken by venipuncture and the effect on laboratory tests
- List the laboratory tests for which capillary specimens may be collected
- Explain why it is necessary to control the depth of the incision
- Describe the procedure for performing a skin puncture
- Describe the procedure for making blood smears
- Name three methods commonly used to transport specimens
- Describe the function of a chain of custody, and the Custody and Control Form

SPECIMEN HANDLING, TRANSPORTATION, AND PROCESSING

- Name three methods commonly used to transport specimens
- Describe the function of a chain of custody, and the Custody and Control Form

PEDIATRIC AND GERIATRIC PROCEDURES

- Describe fears or concerns that children in different developmental stages might have toward the blood-collection process
- Suggest appropriate behaviors for dealing with parents during a venipuncture or skin puncture
- Identify puncture sites for a heel stick on an infant and describe the procedure
- Describe the venipuncture sites for infants and young children
- Discuss the types of equipment and supplies that must be used during microcollection and venipuncture of infants and children
- Describe the procedure for specimen collection for neonatal screening
- Define five physical and/or emotional changes associated with the aging process
- Describe how a healthcare worker should react to physical and emotional changes associated with the elderly
- Explain the special precautions and types of equipment needed to collect capillary blood gases

POINT-OF-CARE COLLECTIONS

- List terms that are synonymous with point-of-care testing
- Identify four analytes whose levels can be determined through point-of-care testing
- Describe the most widely used application of point-of-care testing
- Define quality assurance and its requirements in point-of-care testing
- Explain the special precautions and types of equipment needed to collect arterial blood gases

ARTERIAL, INTRAVENOUS (IV), AND SPECIAL COLLECTION PROCEDURES

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- List the steps and equipment in blood culture collections
- Discuss the requirements for the glucose and lactose tolerance tests
- Explain the special precautions and types of equipment needed to collect arterial blood gases
- Differentiate cannulas from fistulas
- List the special requirements for collecting blood through intravenous (IV) catheters
- Differentiate therapeutic phlebotomy from autologous transfusion
- Describe the special precautions needed to collect blood in therapeutic drug monitoring (TDM) procedures
- Explain special considerations for blood donor collection procedures

URINALYSIS, BODY FLUIDS, AND OTHER SPECIMENS

- Identify body fluid specimens, other than blood, that are analyzed in the clinical laboratory, and identify the correct procedures for collecting and/or transporting these specimens to the laboratory
- Describe the correct methodology for labeling urine specimens
- Identify specimens collected for microbiological, throat, sputum, and nasopharyngeal cultures and the protocol that must be followed when transporting these specimens
- List the types of patient specimens needed for gastric and sweat chloride analysis
- List types of urine specimen collections and differentiate the uses of the urine specimens obtained from these collections
- Describe how to detect adulteration of urine specimens

DRUG USE, FORENSIC TOXICOLOGY, WORKPLACE TESTING, SPORTS MEDICINE, AND RELATED AREAS

- Define toxicology and forensic toxicology
- Give five examples of specimens that can be used for forensic analysis
- Describe the function of a chain of custody, and the Custody and Control Form
- List examples of how blood alcohol contents is measured
- Describe at least three factors that affect testing for alcohol content

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Note: This program can be completed in 4 months. However, students will have online access to this program for a 24-month period

MICROSOFT OFFICE

- Module Use an integrated software package, specifically the applications included in the Microsoft Office suite
- Demonstrate marketable skills for enhanced employment opportunities
- Describe proper computer techniques for designing and producing various types of documents
- Demonstrate the common commands & techniques used in Windows desktop
- List the meaning of basic PC acronyms like MHz, MB, KB, HD and RAM
- Use WordPad and MSWord to create various types of documents
- Create headings and titles with Word Art
- Create and format spreadsheets, including the use of mathematical formulas
- Demonstrate a working knowledge of computer database functions, including putting, processing, querying and outputting data
- Define computer terminology in definition matching quizzes
- Use the Windows Paint program to alter graphics
- Use a presentation application to create a presentation with both text and graphics
- Copy data from one MS Office application to another application in the suite
- Use e-mail and the Internet to send Word and Excel file attachments
- Demonstrate how to use the Windows Taskbar and Windows Tooltips
- Explain how copyright laws pertain to data and graphics posted on the Internet
- Take the college computer competency test after course completion
- Follow oral and written directions and complete assignments when working under time limitations

Note: Although the Microsoft Office Module is not required to successfully complete this program, students interested in pursuing free Microsoft MOS certification may want to consider completing this Microsoft Office Module at no additional cost.

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System Requirements:

Windows Users:

- Windows 8, 7, XP or Vista
- 56K modem or higher
- Soundcard & Speakers
- Firefox, Chrome or Microsoft Internet Explorer

Mac OS User:

- Mac OS X or higher (in classic mode)
- 56K modem or higher
- Soundcard & Speakers
- Apple Safari

iPad Users:

- Due to Flash limitations, eLearning programs are NOT compatible with iPads

Screen Resolution:

- We recommend setting your screen resolution to 1024 x 768 pixels.

Browser Requirements:

- System will support the two latest releases of each browser. When using older versions of a browser, users risk running into problems with the course software.
- Windows Users: Mozilla Firefox, Google Chrome, Microsoft Internet Explorer
- Mac OS Users: Safari, Google Chrome, Mozilla Firefox

Suggested Plug-ins:

- Flash Player
- Real Player
- Adobe Reader
- Java

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