COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

PRINCIPLES OF PHLEBOTOMY
ALH5237 3 Credit Hours

Student Level:
This course is open to students on the college level in either the freshman or sophomore year.

Catalog Description:

ALH5237 - PRINCIPLES OF PHLEBOTOMY (3 hrs)
This course is designed to help the student increase their knowledge concerning an overview of the principles and practice of phlebotomy. As a member of the health care delivery team, the phlebotomist generally works in a clinical laboratory under the supervision of the appropriate technologist. The phlebotomist is primarily responsible for collecting blood specimens from patients for the purpose of laboratory analysis. The course will emphasize safety, specimen collection (venipuncture and capillary puncture) and specimen processing. Students will learn the basic skills required to collect a blood specimen. This course includes both classroom and clinical portions and prepares the student for certification as a phlebotomist.

Prerequisites:
None.

Controlling Purpose:
This course is designed to help the student increase their knowledge of the principles and practice of phlebotomy. As a member of the health care delivery team, the phlebotomist generally works in a clinical laboratory under the supervision of the appropriate technologist. The phlebotomist is primarily responsible for collecting blood specimens from patients for the purpose of laboratory analysis. The course will emphasize safety, specimen collection (venipuncture and capillary puncture) and specimen processing. Students will learn the basic skills required to collect a blood specimen.

Learner Outcomes:
Upon completion of this course the student will demonstrate knowledge of the health care delivery system, anatomy and physiology, medical terminology, infection control and safety as they pertain to phlebotomy. The student will also demonstrate knowledge of venipuncture, collection equipment, specimen collection, and the ability to collect blood specimens by venipuncture and skin puncture.

Units Outcomes and Criterion Based Evaluation Key for Core Content:
The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.

B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.

D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.

F = Failing, will be computed in GPA and hours attempted.

N = No instruction or training in this area.

UNIT 1: THE HEALTH CARE SETTING

Outcomes: The student will gain an understanding of health care setting topics germane to the practice of phlebotomy.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Define phlebotomy
						List the desirable character traits for health care professionals
						Discuss the structure of the health care delivery system as it relates to patient care
						Describe the various hospital departments and their state their major function or area of specialty
						Identify health care providers in hospitals and clinics stating area of service or specialty provided to the patient
						Describe the organizational structure of the clinical laboratory department
						Discuss the roles of the clinical laboratory personnel and their qualifications for these professional positions
						List the types of laboratory procedures performed in the various sections of the clinical laboratory
						Discuss CLIA'88 and levels of testing categories as defined by this law, give examples of each level of testing
						List the key elements necessary for effective communication
						Discuss the basic concepts of communication, personal and patient interaction, stress management, professional behavior and legal implications of this work environment
						Discuss verbal and nonverbal communication and give examples of positive and negative form of communication for each

						Discuss the importance of appearance and grooming for the phlebotomist
						Define HIPAA and list the important elements of this regulation
						Discuss the concept of quality and how this applies to the phlebotomist, give examples
						List the tools used to evaluate continuous quality improvement.
						Define the basic legal and ethical terms used in the medicolegal aspect for phlebotomy and explain how they relate to health care
						Discuss and explain the importance of maintaining patient confidentiality
						Define the legal terms assault, battery, negligence, and malpractice and give examples of how each applies to the practice of phlebotomy
						Discuss policies and procedures in the clinical laboratory to avoid medicolegal problems, patient confidentiality
						Define informed consent and implied consent, give examples of each
						Define standard of care and explain how it is determined; which agencies determine the standard and how it is regulated
						Describe the procedure followed to avoid litigation as it relates to specimen collection in a health care environment
						Describe a medical record and list the purposes for the medical record
						Define nosocomial infection
						Discuss the components of an infection control plan and the agencies which provide guidelines for infection control plans and enforcement of the guidelines
						Define and discuss infection control, antiseptics, and disinfectants and give examples of each
						Define the “chain of infection” and explain how this applies to the health care setting and how the “chain” can be broken
						Discuss in detail the Standard Precautions outlined by the Centers for Disease Control (CDC)
						Discuss in detail and perform proper infection control techniques, such as hand washing, gowning, gloving, masking, double-bagging and entering and exiting the various isolation areas
						Describe the proper method for hand washing
						Differentiate between sterile and aseptic techniques
						Describe the various types of isolation used and give examples of when each should be used
						Identify and discuss the means of transmission (chain of infection) of infection and methods for prevention
						Define “blood borne pathogen”, give examples and describe means of transmission of blood borne diseases in the health care setting
						Discuss the OSHA Blood Borne Pathogens standard, engineering controls and work place controls; give examples
						Discuss the procedure for documentation of accidental exposure to blood borne pathogens

						Describe safety measures that should be followed at all times by a phlebotomist when collecting patient specimens
						Identify and properly label biohazardous specimens
						Name the various government agencies involved in providing standards for workplace safety and enforcement of the standards
						Discuss the OSHA Hazard Communication Standard; Right to Know law; state purpose of MSDS and appropriate use
						Identify policies and procedures for maintaining laboratory safety
						Discuss NFPA classification of fires and extinguishers, NFPA labeling of hazardous materials, and acronyms PASS and RACE as they apply to fire safety
						Describe the chemical, electrical, radiation and biological hazards and fire safety procedures used in the hospital and clinical laboratory
						Discuss basic first aid measures in case of electrical shock, fire or other laboratory accident
						List the causes of stress in the work environment, and discuss the coping skills used to deal with stress in the work environment

UNIT 2: OVERVIEW OF THE HUMAN BODY

Outcomes: The student will gain an understanding of the anatomy and physiology of the human body pertaining to the practice of phlebotomy.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Describe the purpose, function, and structural components of each of the main body systems
						Define: anatomy, physiology, and pathology
						Identify parts of the body according to their proximity to one of the body planes
						Describe the structural levels of the human body and primary function at each level (cell-organ-organ system)
						Define “homeostasis” and describe the role of homeostasis in normal body function
						Describe how laboratory testing is used to assess body functions and disease, give examples of disorders associated with each organ system
						List common diagnostic tests associated with each organ system
						Identify and describe the anatomy and physiology of body systems and anatomic terminology in order to relate major areas of the clinical laboratory to general pathologic conditions associated with the body systems
						Identify and describe the structures and functions of the components of the circulatory system
						Trace the flow of blood through the cardiovascular system
						Identify and describe the cellular and noncellular components of blood and

						state the primary function of each
						Name the laboratory tests used to evaluate the cellular blood components
						Identify the veins of the arms, hands, legs and feet on which phlebotomy is performed
						Explain the functions of the major constituents of blood and differentiate between serum and plasma
						Define hemostasis and explain the basic process of coagulation and fibrinolysis
						Discuss the properties of arterial blood versus venous blood, and describe the difference in collection materials
						Define “blood pressure” and “pulse” and describe how each is determined
						List the various blood types and corresponding antibodies; discuss the importance of blood type in transfusion medicine

UNIT 3: BLOOD COLLECTION PROCEDURES

Outcomes: The student will gain an understanding of the blood collection procedures necessary for the practice of phlebotomy.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Identify the various types of additives used in blood collection, and explain the reasons for their use and common laboratory tests associated with each additive
						Identify the evacuated tube color codes associated with the additives
						State the “order of draw” for collection tubes using the evacuated tube method and syringe method
						Describe the types of patient specimens that are analyzed in the clinical laboratory and phlebotomist’s role in collecting and/or transporting these specimens to the laboratory
						Review selection of collection equipment, various types of additives used, special precautions necessary and substances that can interfere in clinical analysis of blood constituents
						List and select the types of equipment needed to collect blood by venipuncture and capillary puncture
						List the supplies that should be carried on a phlebotomy tray
						Describe essential elements of test requisition, patient report forms, and specimen collection manual
						Describe the laboratory criteria for identifying an appropriate request for specimen collection, patient identification, and patient positioning
						Describe the proper manner for greeting and interacting with a patient
						Explain the major points in interviewing a patient or a patient’s representative in preparation for obtaining specimens
						Describe and discuss techniques for dealing with family and visitors during the

						blood specimen collection
						Describe the importance of proper patient/sample identification
						Identify situations the phlebotomist may encounter with the patient when attempting to collect a blood specimen or receive a previously collected blood specimen and discuss the proper labeling and documentation required for each situation
						Describe the importance of proper patient identification and describe what information is verified, how to handle discrepancies, and what to do if the patient's ID band is missing
						List the effects of proper tourniquet application and heat application in relation to sample quality
						Identify potential sites for venipuncture
						Identify alternate venipuncture collection sites and describe the limitations, precautions, and equipment required for each
						Describe and demonstrate the steps in the preparation of a puncture site
						List the steps and equipment necessary to perform a venipuncture by evacuated tube method, syringe method, and winged infusion set method
						Demonstrate the proper technique to collect a patient specimen by venipuncture
						Describe proper needle insertion and withdrawal techniques including needle orientation, angle, depth and aspiration rate
						Identify special precautions necessary during blood collections by venipuncture and capillary puncture
						List criteria required for acceptable specimen labeling and describe several methods used for specimen labeling (hand written, computer generated, bar code), state advantages/disadvantages for each
						Describe the areas for potential clerical and/or technical errors that may occur during specimen processing and transportation of blood specimens
						List the general criteria necessary for an acceptable specimen including specimen identification and labeling
						Summarize the importance of specimen collection in the overall patient care system
						Describe physical and/or emotional changes that are associated with the aging process
						Describe how a health care worker should react to physical and emotional changes associated with the elderly
						Describe the effects of the patient's physical disposition on blood sample quality
						Discuss the types of substances that can interfere in clinical analysis of blood constituents and methods used to prevent these occurrences
						List the special requirements for collecting blood through central venous catheters (CVCs); differentiate between cannulas and fistulas
						Name and explain frequent causes of phlebotomy complications

						Describe signs and symptoms of physical problems that may occur during blood collection
						List the reasons for performing a skin puncture procedure
						Identify the proper sites for performing a skin puncture procedure
						List the correct order of draw for specimens collected by skin puncture
						Explain the difference between blood collected by skin puncture and blood collected by venipuncture
						List the steps to perform a capillary puncture in chronological order
						List the effects of hand squeezing and heating of puncture site on sample quality in capillary puncture
						Demonstrate proper technique to collect a patient specimen by skin puncture
						Describe the method for collecting and preparing a blood smear
						Demonstrate proper technique in preparing a blood smear; list the qualities of an acceptable blood smear
						Describe preferred venipuncture and capillary puncture sites for infants and young children
						Discuss special procedures that may be required to collect venipuncture or capillary specimens from children or infants and complications relative to pediatric venipuncture or capillary puncture
						Discuss the types of equipment and supplies that must be used during microcollection and venipuncture of infants and children
						Identify puncture sites for a heel stick on an infant and describe the procedure
						Explain why controlling the depth of the puncture is necessary
						Describe the purpose for newborn screening testing, screening tests performed and proper collection procedure for filter paper collection for newborn screening

UNIT 4: SPECIAL PROCEDURES

Outcomes: The student will gain an understanding of special phlebotomy procedures.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Explain the principle behind each special collection procedure, identify the steps of the procedure and list any special supplies or equipment required
						Discuss the special requirements for patient identification and specimen labeling for blood bank specimens
						List the steps and equipment necessary for collection of blood cultures
						Discuss the procedure and specimen requirements for the pp glucose, and glucose and lactose tolerance tests
						Explain the importance of timing in collection of therapeutic drug monitoring (TDM) specimens

						Explain therapeutic phlebotomy stating the reason for use and proper collection procedure
						Define toxicology; discuss forensic specimens and chain of custody
						Discuss the role of drug testing as it applies to workplace testing, sports participants, and newborns suspected of exposure to drugs
						Describe the role of the health care worker or collector in federal drug testing programs
						Describe the conditions that must be met if blood specimens and laboratory tests are to be used as legal evidence
						Describe the function of a chain-of-custody, and the Custody Control form
						List the basic steps in specimen collection for urine drug tests and blood alcohol levels
						List the types of patient specimens that are needed for trace metal analysis
						List two other terms that are synonymous with point-of-care testing
						Identify six analytes whose levels can be determined through point-of-care testing, sample requirements for each, and associated disease state diagnosed or monitored by each
						Describe the most widely used application of point-of-care testing including sample requirement and disease or condition diagnosed or monitored
						Describe the role of adequate training, quality control, quality assurance and problem solving in point of care testing
						Discuss the purpose of the bleeding time test
						Describe the equipment that is used to perform the bleeding time test; list the steps required to perform a bleeding time test
						Explain the special precautions and types of equipment needed to collect capillary or arterial blood gases
						Identify the sites that can be used for arterial puncture, the criteria used for selection of the site and the advantages and disadvantages of each
						Explain the purpose of the modified Allen test, describe how it is performed and interpretation of the results, positive/negative result
						List hazards and possible complications related to arterial puncture
						Explain the special handling required for arterial blood gas specimens
						Identify sampling errors that may affect the quality of an arterial blood sample
						list reasons an arterial specimen may be rejected for blood gas analysis
						Identify the types of body fluid specimens, other than blood, that are analyzed in the clinical laboratory, and the correct procedures for collecting and/or transporting these specimen to the laboratory
						List the types of urine specimen collections and summarize the various collection procedures
						Identify tests commonly performed on body fluids other than blood, the preferred specimen for each, and the primary use in patient diagnosis and/or care
						Identify the various types of specimens collected for microbiology: throat,

						nasopharyngeal, urine, stool, and the protocol that health care workers must follow when transporting these specimens
						List the types of patient specimens that are needed for gastric and sweat chloride analyses and conditions or diseases diagnosed by these analyses
						Identify general computer skills that may be necessary for specimen preparation
						Describe how bar codes may be used in the laboratory setting for specimen identification
						Explain methods for transporting and processing blood specimens for routine and special testing within the hospital and for reference laboratories
						List the circumstances that would lead to re-collection or rejection of a patient sample
						Explain the importance of proper collection and transportation of timed specimens, fasting specimens and STAT specimens
						Describe the general effects of time on test quality and patient care

UNIT 5: CLINCAL PHLEBOTOMY

Outcomes: The student will demonstrate the ability to perform routine procedures in phlebotomy and specimen processing with accuracy and precision.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Adhere to the clinical and administrative policies of the clinical facility (e.g. dress code, schedule, confidentiality).
						Demonstrate prescribed safety procedures in all areas of laboratory work.
						Practice the ASCP Code of Ethics at all times.
						Demonstrate competency in performing previously practiced procedures.
						Follow written and verbal instructions with minimal supervision, while recognizing limitations.
						Demonstrate dependability and self-discipline in arriving on time and completing required assignments in an organized and timely manner, to the satisfaction of the clinical faculty.
						Demonstrate interpersonal communication skills with patients, laboratory personnel and other health care professionals with respect to their jobs and patient care.
						Demonstrate initiative by seeking unsolicited tasks and helping others willingly.
						Accept and apply constructive criticism as positive information and respond to supervision maturely.
						Demonstrate integrity by admitting errors or mistakes and taking action to rectify the problem.
						Demonstrate interest and enthusiasm towards assigned tasks and for the profession.

						Recognize the need for additional information and the importance of continuing education to ensure professional competence by seeking reference material and/or asking pertinent questions.
						Describe the basic organization of the phlebotomy/specimen processing section.
						Apply basic theoretical knowledge to the clinical setting.
						Demonstrate proper safety techniques (Universal precautions) to be taken when handling infectious materials according to laboratory protocol.
						Communicate clearly and concisely with health care personnel.
						Demonstrate professional attitudes.
						Utilize laboratory information systems for record keeping and patient results.
						Explain the importance of proper specimen collection and transport of specimens.
						Utilize criteria to determine specimen quality and corrective actions to be taken to resolve problems.
						Collect routine, timed, and STAT patient specimens in appropriate order and in a timely fashion.
						Successfully collect patient specimens by vacuum tube, syringe or skin puncture as determined by patient assessment.
						Instruct outpatients in proper collection of various types of urine collections and stool collections for tests requested.
						Compare patient requisition with patient sample for proper identification, labeling and specimen type.
						Utilize established specimen monitoring criteria to identify and evaluate patient specimens as acceptable or unacceptable for requested testing.
						Evaluate and prepare patient specimens for shipment to reference laboratories.
						Utilize criteria to determine specimen quality and corrective actions to be taken to resolve problems.

Projects Required:
Varies, refer to syllabus.

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:
None.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:
Based on classroom occupancy

Course Time Frame:
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If you have a disability which may impact your work in this class and for which you require accommodations, please contact the Disability Services Coordinator.