

**Health Science Career Cluster  
Clinical Lab II  
Course Number: 25.57700**

**Course Description:**

The goal of this course is to provide fundamental clinical laboratory-assistant skills and knowledge to include the use of laboratory equipment, safety in the lab, quality control and assurance, hematology, urinalysis, serology/immunology, immunohematology, and knowledge of phlebotomy procedures. Students will have the opportunity to explore careers in the clinical lab industry and the education required at each level.

The ultimate goal of the Clinical Lab pathway is to prepare students to continue their education at a post-secondary institution and/or possibly take the medical lab assistant assessment potentially resulting in an industry credential. In order to be eligible to take the assessment, a student would have to successfully complete Introduction to Healthcare Science, Essentials of Healthcare, Clinical Lab I, and Clinical Lab II, as well as any required clinical experiences mandated by the certifying body. State laws and certifying agency regulations govern which tests can be performed by a clinical lab assistant in each state. Even though certain topics are covered on the national assessment, it should be understood that Lab Assistants must follow Georgia State regulations concerning laboratory testing and simulation of those components may be necessary in a classroom setting.

The prerequisites for this course include Introduction to Healthcare Science, Essentials of Healthcare, and Clinical Lab I.

**Course Standard 1**

**HS-CLII-1**

The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

**Standard: Demonstrate employability skills required by business and industry.**

The following elements should be integrated throughout the content of this course.

**1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.**

Person-to-Person Etiquette	Telephone and Email Etiquette	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening
	Handling Unsolicited Calls		Giving and Receiving Feedback	Asking Questions

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				Obtaining Feedback
				Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language and mixed Messages	Constructive Criticism in Writing	One-on-One Conversations	Writing a Cover Letter
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé
Improving Nonverbal Indicators		Large Group Communication	Selling Yourself in a Résumé
Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé
Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

### 1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

### 1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés:	Traits Employers are Seeking	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship

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				Staying Motivated to Search
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### 1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers
Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers
Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict
Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	
Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			
Leaving a Job Ethically				

### 1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
	Expressing Yourself on a Team	Staying Organized
	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

### 1.6 Present a professional image through appearance, behavior and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude
Business Meal Functions		Proper Use of Cell Phone	Using Good Posture
Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates

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Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

### Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:

Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.

## Course Standard 2

### HS-CLII-2

**Discuss and evaluate hematology procedures to understand normal results and disease processes in a simulated classroom lab setting.**

- 2.1 Demonstrate utilizing related hematology terminology.
- 2.2 Identify and explain the structure and function of blood, as well as the components.
- 2.3 Differentiate between platelets, erythrocytes, and leukocytes.
- 2.4 Describe red blood cells (RBC), white blood cells (WBC), and platelet counts by using the microscope to perform the counts, and explain the Complete Blood Count by providing normal reference ranges.
- 2.5 Demonstrate point-of-care testing (POCT) hemoglobin testing.
- 2.6 Demonstrate creating a blood smear.
- 2.7 Demonstrate performing waived test for spun hematocrit.
- 2.8 Discuss normal and abnormal red blood cell and white blood cell morphology.
- 2.9 Discuss or observe erythrocyte sedimentation rate.
- 2.10 Describe automated cell counters.
- 2.11 Discuss or observe a reticulocyte count.
- 2.12 Research the clinical significance of coagulation and explain the procedure for bleeding time.
- 2.13 Discuss or observe the prothrombin time (PT) test and what medication it monitors.
- 2.14 Discuss or observe the partial thromboplastin time (PTT) test.
- 2.15. Compare and contrast disease that may be diagnosed with blood tests.

## Course Standard 3

### HS-CLII-3

**Obtain, label, preserve, and process urine specimens for lab analysis in a simulated classroom lab setting.**

- 3.1 Demonstrate utilizing terminology related to urinalysis.
- 3.2 Explain random, midstream, and timed urine specimens, including collection and labeling procedures, and diagnostic uses.
- 3.3 Identify and describe the physical and chemical properties of urine.
- 3.4 Perform simulated urinalysis to obtain physical and chemical findings to include the normal and pathological ranges of these elements.
- 3.5 Explain sample preparation for a urine microscopic examination of sediment and composition.
- 3.6 Describe microscopic elements in urine sediment to include blood cells, epithelial cells, casts, crystals, yeasts, bacteria, parasites, amorphous mucus, spermatozoa, and any other artifacts.
- 3.7 Explain the role of refrigeration and preservatives in accurate urinalysis.

## Course Standard 4

### HS-CLII-4

**Research antigen/antibody response, and determine steps performed in serology and immunology testing in the lab.**

- 4.1 Demonstrate utilizing terminology related to immunology and serology.
- 4.2 Investigate the antigen and viral structure in the human antibody response.
- 4.3 Identify and describe which diseases may cause false reactive RPRs (rapid plasma reagin).
- 4.4 Observe a simulated RPR for syphilis and identify quality control procedures for RPR.
- 4.5 Observe or perform the following:
  - heterophile agglutination (mono test)
  - qualitative rheumatoid arthritis tests (latex agglutination)
  - qualitative pregnancy tests
  - qualitative acquired immune deficiency syndrome (AIDS) screen
- 4.6 Identify and describe the different blood groups, blood types, and Rh factors.
- 4.7 Describe the procedure for typing, screening, and cross matching blood.
- 4.8 Perform slide ABO and Rh testing (Agglutination Test).
- 4.9 Classify the criteria for selection of blood components for transfusion.
- 4.10 Research American Association of Blood Banks (AABB) and Food and Drug Administration (FDA) standards pertaining to transfusions.
- 4.11 Determine donor-blood screening, collection, and storage criteria.
- 4.12 Observation of donor collection.
- 4.13 Explain the importance of an antibody identification panel.

## Course Standard 5

### HS-CLII-5

**Demonstrate the process of obtaining blood specimens through venipuncture and capillary puncture.** *(A separate phlebotomy course is available. After completing all requirements of the course, the student may have the opportunity to take an industry-credentialing exam which may lead to a student becoming a certified phlebotomist).*

- 5.1 Demonstrate adhering to proper patient identification and other safety regulations.
- 5.2 Select appropriate containers for specimens and identify requirements for container identification.
- 5.3 Demonstrate preparing a patient for various tests.
- 5.4 Select proper venipuncture sites using knowledge of anatomy and physiology.
- 5.5 Perform venipuncture and collect specimen in proper tube draw sequence.
- 5.6 Perform capillary punctures, including POCT (point-of-care testing).
- 5.7 Perform infant heel sticks on mannequin heels.
- 5.8 Provide proper host care of blood samples to maintain specimen integrity.

## Course Standard 6

### HS-CLII-6

**Maintain appropriate reports and patient data; inventory and supplies; and billing procedures for hematology, urinalysis, blood bank, and immunology testing.**

- 6.1 Demonstrate utilizing electronic health records for the reporting and documentation of patient collection data and lab results. (May use simulated electronic records)
- 6.2 Identify the components of a complete and final report.
- 6.3 Maintain inventory levels, order, and restock supplies.
- 6.4 Demonstrate utilizing electronic billing software.

## Course Standard 7

### HS-CLII-7

**Observe medical personnel communicating with other medical personnel, patients, and families regarding laboratory testing and special requirements for hematology, urinalysis, blood bank, and immunology testing.**

- 7.1 Observe and assist medical personnel when appropriate, communicate with physician office personnel, and hospital patient units regarding special scheduling and special situations.
- 7.2 Observe and assist medical personnel, when appropriate as they inform and explain special test requirements to patients and/or family members.

## Course Standard 8

### HS-CLII-8

**Analyze the use of forensic medicine in criminal science.**

- 8.1 Research the applications of forensic medicine and investigate career pathways in forensics.
- 8.2 Examine autopsy use in determining etiology and time of death.
- 8.3 Analyze DNA typing and explore forensic anthropology in the identification process.
- 8.4 Explore the use of odontology in evidence identification.
- 8.5 Investigate the use of serology (ABO, Rh, and secretion) studies.