



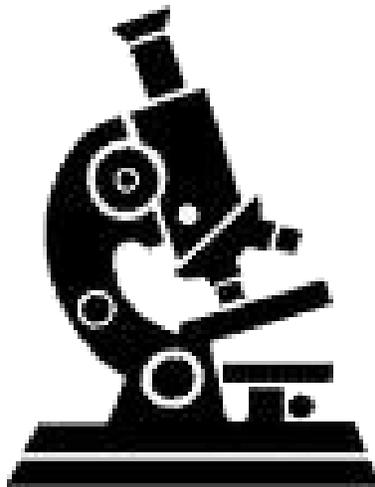
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## Medical Laboratory Technician

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STUDENT HANDBOOK

2014-2016



## **MLT PROGRAM CONTACT INFORMATION**

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## **MLT Mission Statement**

The Medical Laboratory Technician Program at Southeast Kentucky Community and Technical College is committed to improving the quality of life and employability of the citizens of the southeast Kentucky by training dedicated professionals to enter the workforce in the field of clinical laboratory science.

## **Program Description**

The Medical Laboratory Technician (MLT) program provides students with the opportunity to acquire the necessary skills to work under the supervision of a registered clinical scientist or pathologist in a clinical laboratory, hospital, or other health agency.

The MLT student learns to collect specimens from the patient and perform laboratory tests in all areas of the clinical laboratory to include immunohematology, clinical chemistry, hematology, microbiology, serology and urinalysis.

Students enrolled in the MLT program must achieve a minimum grade of “C” in each of the clinical laboratory technician courses.

Upon completion of the program, the graduate is eligible for the national certification examination as a medical laboratory technician through the American Society of Clinical Pathology.

## **Program Goals**

The goals of the Medical Laboratory Technician Program at Southeast Kentucky Community and Technical College are to:

- Disseminate information about clinical laboratory science to potential students so that they may consider MLT as a profession.
- Provide adequate, timely, and effective training to students who choose clinical laboratory science as a profession
- Meet the increasing demand for qualified laboratory professionals.
- Establish a positive rapport with local clinical laboratory professionals to aid in the education of our students and to aid in supplying the increasing demand for qualified laboratory professionals

## **Program Competencies**

Upon completion of the Medical Laboratory Technician Program, the graduate will be able to:

- Perform laboratory tests in all areas of the clinical laboratory;
- Maintain laboratory materials and equipment;
- Prevent and detect technical errors;
- Solve problems as they occur in the clinical laboratory;
- Carry out an established quality assurance program;
- Practice medical ethics;
- Demonstrate professionalism;
- Follow established clinical laboratory safety guidelines;
- Demonstrate basic skills in computer operations and/or software applications;
- Communicate effectively using standard written English;
- Communicate in a clear oral and non-verbal fashion and employ active listening skills;
- Organize, analyze and make information useful by employing mathematics;
- Demonstrate an awareness of one's interaction with the biological/physical environment;
- Demonstrate an awareness of one's self as an individual, as a member of a multicultural society, and/or as a member of the world community;
- Recognize the impact of decisive ideas and events in human heritage;
- Develop and perform basic search strategies and access information in a variety of formats, print and non-print;
- Analyze, summarize, and interpret a variety of reading materials;
- Think critically and make connections in learning across the disciplines;
- Elaborate upon knowledge to create new thoughts, processes, and/or products; and,
- Demonstrate an awareness of ethical considerations in making value choices.

Upon completion of the Physician's Office Laboratory certificate, the graduate will be able to:

- Practice medical ethics;
- Demonstrate professionalism;
- Follow established clinical laboratory safety guidelines;
- Communicate in a clear oral and non-verbal fashion and employ active listening skills;
- Demonstrate an awareness of ethical considerations in making value choices;
- Carry out an established quality assurance program;
- Perform routine capillary and venipuncture procedures;
- Perform minimum complexity testing in the clinical laboratory.

Upon completion of the Phlebotomy for the Health Care Worker, the graduate will be able to:

- Practice medical ethics;
- Demonstrate professionalism;
- Follow established clinical laboratory safety guidelines;
- Communicate in a clear oral and non-verbal fashion and employ active listening skills;
- Demonstrate an awareness of ethical considerations in making value choices;
- Carry out an established quality assurance program;
- Perform routine capillary and venipuncture procedures.

Upon completion of the Advanced Phlebotomy Technician certificate, the graduate will be able to:

- Practice medical ethics;
- Demonstrate professionalism;
- Follow established clinical laboratory safety guidelines;
- Communicate in a clear oral and non-verbal fashion and employ active listening skills;
- Demonstrate an awareness of ethical considerations in making value choices;
- Carry out an established quality assurance program;
- Perform routine capillary and venipuncture procedures;
- Recognize technical complications related to blood collection;
- Demonstrate problem-solving skills in blood collection procedures.

### **Admissions Criteria:**

- Application for admission to the college
- High school transcript or G.E.D. official score report
- Transcripts of all post-secondary education
- Completed Consideration for Admission form
- ACT scores

In addition applicants must also meet minimum scores on the ACT, or have successfully completed college level courses in English and mathematics. Minimum scores on the ACT are 18 in English, 19 in Mathematics, and 20 in Reading. ACT scores are not the sole determinant in the selection process but preference may be given to students with a composite ACT score of 19 or higher.

\*Students enrolled in a certificate program embedded in the MLT curriculum, will have admission requirements separate from MLT program students. However, if the certificate student chooses to apply for admission into the Associate of Applied Science degree in Medical Laboratory Technician, the admission standards will have to be met.

### **Admissions Committee:**

Selection of students for the program will be made by the president of the college or the president's designee, after considering the recommendations of the Admissions Committee. Membership on this Committee shall include the following:

- 1) Medical Laboratory Technician Program Director
- 2) Allied Health Division Chairperson
- 3) Medical Laboratory Technician Faculty Member
- 4) Admissions Officer and/or Counselor
- 5) General Education - Faculty Members (2)

**Preference may be given to:**

- Applicants with an ACT composite score of 19 or above.
- Applicants who possess an Associates or Bachelor's degree in a related science field.
- Applicants who rank in the upper half of their graduating class or have an average score of 50 or above on the GED.
- Applicants with a background in algebra and chemistry
- Those applicants who submit evidence of successful completion of developmental course work and/or those who have a cumulative grade point average of 2.5 or better in 12 or more credit hours of college work, including at least one science course.
- Students who completed the admission procedure prior to March 1.
- Student who has completed a KCTCS phlebotomy program.

**Transfer**

- Students wishing to transfer from one Medical Laboratory Technician program to another will be considered on an individual basis.
- Admission will be dependent upon available resources at the community college.
- Students must meet all program admission requirements set by the college to which transfer is sought

**Additional Criteria:**

Upon admittance the student must submit the following materials prior to beginning clinical experiences:

- Results of the Color Blindness Test
- Evidence of receiving Hepatitis B vaccination; or evidence of being in the process of receiving the Hepatitis B vaccine series; or a signed declination form if student chooses not to receive the Hepatitis B vaccination
- TB skin test
- Immunization Records
- Specified laboratory test results required by clinical affiliates
- Criminal background check
- Drug Screening

### **Essential Functions:**

The Medical Laboratory Technician specializes in the application of scientific knowledge and theory in the skillful performance of medical laboratory functions. Therefore, all applicants should possess:

- Sufficient visual acuity and color perception, such as is needed to perform microscopic examinations, to distinguish color reactions, and to detect antigen-antibody reactions
- Sufficient gross and fine motor coordination to efficiently implement the skills required in performing laboratory functions, including collection of specimens and manipulation of laboratory equipment, such as glassware and electronic instruments
- Sufficient communication skills (verbal, non-verbal and written) to interact effectively with individuals
- Sufficient intellectual, emotional, and physical functions to plan and implement laboratory duties in a responsible manner

## **Accreditation and Program Success**

The Medical Laboratory Technician Program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

### **NAACLS**

5600 N. River Road, Suite 720

Rosemont, Illinois, 60018-5119

Phone: 847-939-3597 or 773-714-8880

Fax: 773-714-8886

Email: [info@naacls.org](mailto:info@naacls.org) or visit <http://www.naacls.org>

Southeast Kentucky Community & Technical College maintains accreditation by the Southern Association of Colleges and Schools (SACS).

### **SACS COC**

Southern Association of Colleges and Schools

Commission on Colleges

Phone: (404) 679-4500 extension 4504

Fax: (404) 679-4558

[www.sacscoc.org](http://www.sacscoc.org)

**All program graduates take the national board exam, called the Board of Registry of the American Society of Clinical Pathology, after having met their academic and laboratory educational requirements. Once you've passed, you may use the initials "MLT (ASCP)" after your name to show you're proficient in laboratory medicine.**

## Curriculum

### General Education Courses

ENG 101 Writing I	3	
MAT 110 Applied Mathematics, <b>OR</b>	3	
Higher math course	(3)	
PSY 110 General Psychology		3
Heritage/Humanities/Foreign Language	3	
COM 181 Basic Public Speaking OR	3	
COM 252 Introduction to Interpersonal Communication	(3)	
CHE 130 Introductory General and Biological Chemistry <b>OR</b>	<b>4</b>	
Higher chemistry course	(3)	
Computer Literacy	0-3	
	Subtotal General Education	(18-22)

### **Core Courses**

	Digital Literacy	0-3	
BIO 135	Basic Anatomy & Physiology with Laboratory*	4	
MLT 112	Urinalysis	2	
MLT 115	Serology	2	
MLT 215	Hematology I AND	4	
MLT 216	Hematology II OR		3
MLT 217	Fundamentals of Hematology AND	(3)	
MLT 218	Clinical Hematology	(4)	
MLT 225	Immunochemistry I AND		2
MLT 226	Immunochemistry II OR	2	
MLT 227	Immunochemistry	(4)	
MLT 278	Practicum I or fractionated version 2781 & 2782		
	Option # 1	4	
	Option # 2	5	
	<b>Subtotal</b>		<b>23-27</b>

\*BIO 137 & 139 may be substituted for BIO 135

### **Pathway 1-511004703 (offered at SMC, SEC, and HEC)**

BIO 225	Medical Microbiology	4	
MLT 101	Introduction to the Clinical Laboratory AND		3
PHB 151	Phlebotomy for the Healthcare Worker AND	1	
PHB 152	Phlebotomy: Clinical Experience	<u>1</u>	
MLT 205	Clinical Microbiology I AND	3	
MLT 206	Clinical Microbiology II	2	
MLT 233	Clinical Chemistry I AND	3	
MLT 234	Clinical Chemistry II	2	
MLT 279	Practicum II or fractionated version 2791 & 2792	4	

**Subtotal credit Hours 23**

**Total Credit hours - Pathway I 64-68**

**Pathway II-511004704 (offered at MDC, WKC)**

MLT 207	Introduction to Clinical Diagnostic Microbiology	2
PHB 170	Applied Phlebotomy AND	3
PHB 152	Phlebotomy Clinical Experience	1
MLT 208	Clinical Diagnostic Microbiology I AND	3
MLT 209	Clinical Diagnostic Microbiology II	2
MLT 247	Introduction to Clinical Chemistry AND	3
MLT 248	Advanced Clinical Chemistry	
3		
MLT 279	Practicum II	5
	Subtotal technical hours	22
<b>Total Credit -Option II Hours</b>		<b>64-68</b>

Electives

MLT 119	Applied Laboratory	3
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- SEC MLT Program follows Option I
- Students Enrolled in the MLT program must achieve a minimum grade of "C" in each of the Medical laboratory technician courses.
- Students are eligible to apply for various types of financial aid. Call the college for an appointment with the Financial Aid Administrator

## **Certificate Programs**

### **Physician's Office Laboratory**

*(Offered at BLC, HEC, HZC, JFC, MDC, SEC, SMC, WKC)*

PHB 151 Phlebotomy AND.....	1
PHB 152 Phlebotomy Clinical Experience AND.....	1
MLT 101 Introduction to the Clinical Laboratory OR.....	3
PHB 170 Applied Phlebotomy AND.....	(3)
PHB 152 Phlebotomy Clinical Experience.....	(1)
MLT 112 Urinalysis.....	2
MLT 115 Serology.....	2

**Total 8-9**

**\*This certificate is embedded in the MLT Program**

### **Phlebotomy for the Health Care Worker**

*(Offered at BLC, HEC, HZC, JFC, MDC, SEC, SMC, WKC)*

PHB 151 Phlebotomy AND.....	1
PHB 152 Phlebotomy: Clinical Experience AND.....	1
MLT 101 Introduction to the Clinical Laboratory OR.....	3
PHB 170 Applied Phlebotomy AND.....	(3)
PHB 152 Phlebotomy: Clinical Experience.....	(1)

**Total 4-5**

**\*This certificate is embedded in the MLT Program**

### **Advanced Phlebotomy Technician**

*(Offered at HZC, SEC,)*

PHB 151 Phlebotomy AND.....	1
PHB 152 Phlebotomy: Clinical Experience AND.....	1
PHB 155 Phlebotomy Clinical AND.....	2
MLT 101 Introduction to the Clinical Laboratory OR.....	3
PHB 151 Phlebotomy AND.....	(1)
PHB 153 Advanced Topics in Phlebotomy AND.....	(4)
PHB 155 Phlebotomy Clinical OR.....	(3)
PHB 170 Applied Phlebotomy AND.....	(3)
PHB 152 Phlebotomy: Clinical Experience AND.....	(1)
PHB 155 Phlebotomy Clinical.....	(2)

## **Courses: Descriptions and Objectives**

### **Introduction to the Clinical Laboratory**

MLT 101 – 3 credits

#### **Description:**

This course includes an orientation to the laboratory and management structure, professional organizations, professional ethics, communication, and record keeping. Also included in the course are medical terminology and abbreviations, laboratory mathematics, quality control and quality assurance procedures, laboratory safety rules and procedures, specimen processing, laboratory automation, and an introduction to immunology. This course introduces the student to the various laboratory departments.

#### **Competencies:**

Upon completion of this course, the student should be able to:

#### Learning Competencies:

1. Discuss the educational preparation, credentialing, certification, and registration process for various categories of laboratory personnel.
2. Explain the organizational structure of clinical laboratories.
3. Discuss the principles of clinical laboratory science ethics.
4. Discuss the principles of effective written and oral communication with supervisors, peers, physicians, and patients.
5. Describe the testing performed in the various laboratory departments to include collection, processing, and labeling of specimens.
6. Discuss the role of laboratory safety procedures and rules.
7. Explain the uses of various types of glassware used in the clinical laboratory.
8. Explain the principles of colorimetry, photometry, spectrophotometry and nephelometry.
9. Explain a standard curve graph and the use of one in determining the concentration of an unknown specimen of a particular analyte.
10. Explain the principle and operation of centrifuges.
11. Identify the differences in operation and application of non-analytical and analytical balances.
12. Explain the principles and use of the microscope in the laboratory.
13. Demonstrate an understanding of terms and abbreviations used in a clinical laboratory.
14. Explain quality assurance in the clinical laboratory.
15. Apply metric system fundamentals in math computations.
16. Define immunology.
17. Demonstrate knowledge and understanding of the basic principles and purpose of the hematology-coagulation laboratory.

18. Demonstrate knowledge and understanding of the basic principles and purpose of the urinalysis laboratory.
19. Demonstrate knowledge and understanding of the basic principles and purpose of the clinical chemistry laboratory.
20. Demonstrate knowledge and understanding of the basic principles and purpose of the microbiology laboratory.
21. Demonstrate knowledge and understanding of the basic principles and purpose of the immunohematology laboratory.
22. Demonstrate knowledge and understanding of the basic principles and purpose of the serology laboratory.

Performance Competencies:

1. Communicate effectively as a clinical laboratory technician in situations such as:
  - a. Giving a laboratory report by phone to a physician.
  - b. Obtaining a clarification on a request from a nursing station by phone.
  - c. Collecting a blood specimen from a patient.
  - d. Filling out a laboratory requisition and report.
2. Utilize established laboratory safety procedures and CDC guidelines.
3. Operate and maintain the following laboratory equipment:
  - a. Routine laboratory centrifuges.
  - b. Compound light microscopes.
  - c. Spectrophotometers
  - d. Analytical and other balances.
4. Perform selected basic hematology procedures:
  - a. Perform a manual hematocrit.
  - b. Prepare and examine blood smears for introductory identification of white blood cells, red blood cells, and platelets.
5. Perform a basic urinalysis, including dipstick, refractometer and microscopic observation of urinary sediment.
6. Perform selected basic chemistry procedures:
  - a. Identify various types of pipettes and use within stated degree of accuracy.
  - b. Demonstrate acceptable procedure for quantitative transfer.
  - c. Prepare and construct a standard curve graph and determine the concentration of an unknown specimen.
7. Perform selected basic microbiology procedures:
  - a. Prepare and read a Gram stain.
  - b. Obtain a throat culture and set up a blood plate using isolation streaking technique.
  - c. Identify various shapes of bacteria.
  - d. Differentiate between gram negative and gram positive organisms.
8. Perform selected basic immunohematology procedures-Type a blood sample for ABO group and Rh factor.
9. Perform selected serological procedures.

Affective Competencies:

1. Demonstrate responsibility for his/her behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peer and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved: August 2001**

**Revised: August 2003**

## Urinalysis

MLT 112 - 2 credits

### **Description:**

The major focus is on the methodology and clinical significance of urine chemical analysis, interferences with chemical analysis procedures, screening methods used in diagnostic determinations, collection and handling of specimens, and the characteristics and clinical significance of formed elements of the urine. The physiological function of the kidneys and diseases that affect the urinary system are also present.

### **Competencies:**

Upon completion of this course, the student will:

#### Learning Competencies:

1. Discuss the anatomy and physiology of the urinary system.
2. Discuss urine specimen collection procedures for routine and special testing.
  - a. Routine or random
  - b. Timed
  - c. Clean-catch
  - d. Catheterized
3. Correlate abnormal findings to common urinary system disease processes.
4. Correlate the physical and chemical findings with microscopic examination.
5. Discuss chemical components as to their significance, related tests, and interfering substances:
  - a. pH
  - b. Proteins
  - c. Glucose and other reducing substances
  - d. Ketones
  - e. Bilirubin
  - f. Urobilinogen
  - g. Porphobilinogen
  - h. Blood
  - i. Nitrite
  - j. Leukocyte Esterase
  - k. Specific Gravity
6. Discuss normal and abnormal microscopic urinary findings, including confirmatory procedures.
7. Discuss quality control in urinalysis.
8. Correlate chemical test results with microscopic findings in routine urinalysis.
9. Discuss automated urinalysis instrumentation.
10. Discuss "special" urinalysis disorders.
  - a. Phenylketonuria
  - b. Melanuria

- c. Maple Syrup Disease
- d. Tryptophan Metabolism Disorders
- e. Porphyrins

Performance Competencies:

1. Practice laboratory safety utilizing universal/standard precautions during urinalysis procedures including disposal of contaminated materials and waste.
2. Identify physical characteristics of urine specimens.
3. Perform tests for urinary constituents using screening and quantitative methods for the following:
  - a. Proteins
  - b. Glucose and other reducing substances
  - c. Ketones
  - d. Bilirubin
  - e. Urobilinogen
  - f. Blood
  - g. Nitrite
  - h. Leukocyte Esterase
  - i. Specific gravity
  - j. pH
4. Perform microscopic examination of urine sediments.
5. Demonstrate the knowledge of the operation of automated/semi-automated instruments for chemical analysis of urine.
6. Perform urinalysis quality control procedures and evaluate data.
7. Discuss panic values for urinalysis and their proper reporting.

Affective Competencies:

1. Demonstrate responsibility for his/her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved: August 2001**

## Serology

MLT 115 - 2 credits

### **Description:**

Basic immunological principles are introduced. Applications of serological testing for the diagnosis and monitoring of diseases and other antigenic responses are included.

### **Competencies:**

Upon completion of this course, the student will be able to do the following:

#### Learning Competencies:

1. Define immunology.
  - a. Describe the first line of defense.
  - b. Describe the components of the natural and adaptive immunity system.
  - c. Distinguish between passive and active immunity.
2. Discuss specific immunity.
  - a. Describe an antigen.
  - b. Describe an antibody include their structure, function, and characteristics.
  - c. List the types of antibodies and describe the role each plays in the immune process.
  - d. Describe cells associated with specific immunity to include T-cells, B-cells, macrophages, neutrophils, basophils, eosinophil's and the major histocompatibility complex.
  - e. Describe phagocytosis.
  - f. Differentiate between humoral and cell-mediated immunity.
3. Discuss the role of complement in the immune process.
4. Discuss the immune response.
  - a. Describe the antigen-antibody reaction.
  - b. Describe the process of mounting an immune response.
5. Describe the principle and methodology of Immunologic and Serologic procedures:
  - a. Precipitation
  - b. Agglutination
  - c. Immunofluorescent techniques
  - d. Monoclonal antibody tests
  - e. Complement fixation, and
  - f. Enzyme/Radioimmunoassay (EIA/RIA)
  - g. DNA probes/PCR
6. Describe specimen collection for serological procedures.
7. Define acute and convalescent sera.
8. Define antibody titers.
9. Define, describe and apply chemistry and math fundamentals in computations involving percent solutions and dilutions.

10. Apply math fundamentals for percents and ratio/proportion to laboratory dilutions.

11. Discuss the immunologic manifestations of infectious disease to include diagnosis and test methodology.

- a. Streptococcal infections producing anti-streptolysin O
- b. Syphilis
- c. Febrile diseases
- d. Infectious Mononucleosis
- e. Viral Hepatitis
- f. Rubella
- g. Rheumatoid Arthritis
- h. Human Immunodeficiency Virus
- i. Lyme disease
- j. Helicobacter pylori Infection
- k. Chlamydia Infection
- l. Systemic Lupus Erythematosus (SLE)

12. Discuss miscellaneous serology.

- a. C-reactive protein
- b. Pregnancy Tests
- c. Cold agglutinins

Performance Competencies:

1. Prepare and perform serial dilutions.
2. Perform basic laboratory calculations involving dilutions, dilution factors and solution concentrations.
3. Practice laboratory safety utilizing universal/standard precautions during serology procedures including disposal of contaminated materials and waste.
4. Correctly grade and record all serological reactions.
5. Perform the following serological tests:
  - a. Group A strep screen
  - b. Rapid Plasmin Reagents (RPR)
  - c. Infectious mononucleosis
  - d. Rheumatoid Factor (RF)
  - e. C-reactive protein
  - f. Cold agglutinins
  - g. Pregnancy tests

6. Know panic values and proper techniques for reporting.

7. Perform quality control procedures and evaluate data.

Affective Competencies:

1. Demonstrate responsibility for his/her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.

6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved: August 2001**

**Revised : August 2003**

## Applied Laboratory – Part 1

MLT 1191 – 1.5 credits

### **Description:**

Prepares the MLT student for clinical rotation into the major areas of the laboratory. Includes practical application in Hematology, Clinical Microbiology, and Urinalysis.

### **Competencies:**

Upon completion of this course, the student can:

#### Learning and Performance Competencies:

1. Perform a spun microhematocrit.
2. Perform a retic count and correct for anemias.
3. Perform a sickle cell count.
4. Perform an erythrocyte sedimentation rate.
5. Perform automated Complete Blood Count. Relate CBC findings with morphological findings for a clinical diagnosis.
6. Perform normal differentials.
7. Make a blood smear and stain with Wright's stain for differential.
8. Use a microscope for cell counts and identification.
9. Describe the three basic shapes of microorganisms.
10. Explain the gram stain reaction of each cell wall type.
11. Explain the use of the following stains: gram stain and acid-fast stain.
12. List the types of microscopy and their uses in microbiology.
13. Define the following terms: sterilization, disinfection, bacteriostatic, and bactericidal.
14. Describe the basic principles of specimen collection for materials received in the form of aspirates, tissues, and swabs.
15. Describe the procedure for collecting and processing a blood culture.
16. Demonstrate a knowledge of mechanisms for maintaining organism viability relating to preservation, storage, and transport of specimens.
17. Define the atmospheric requirements of obligate aerobes, microaerophiles, facultative anaerobes and obligate anaerobes.
18. Demonstrate appropriate inoculation procedures for media.
19. Perform a gram stain and make a presumptive identification of microorganisms.
20. Define and identify selective and non-selective media.
21. Identify appropriate media for the growth of gram negative and gram positive organisms.
22. Given the organism's characteristic growth on non-selective and selective differential media presumptively identify the isolate.
23. Identify gram positive cocci and bacilli microorganisms by gram stain, colonial morphology, and biochemical testing.
24. Identify gram negative cocci and bacilli microorganisms by gram stain, colonial

- morphology, and biochemical testing.
25. List quality control microorganisms commonly used in the clinical microbiology laboratory
  26. Calibrate the semi-automated and/or automated analyzers.
  27. Perform quality control procedures.
  28. Perform specimen processing procedures for Hematology, Immunohematology, Microbiology, Serology, Urinalysis, and Chemistry.
  29. Perform chemical analysis on semi-automated instrument.
  30. Perform routine urinalysis testing to include chemical analysis and microscopic examination of sediment.

Affective Competencies:

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** May 2006

**Revised:**

## Applied Laboratory – Part 2

MLT 1192 – 1.5 credits

### **Description:**

Prepares the MLT student for clinical rotation into the major areas of the laboratory. Includes practical application in Clinical Microbiology, Immunohematology, Serology, and Clinical Chemistry.

### **Competencies:**

Upon completion of this course, the student can:

#### Learning and Performance Competencies:

1. Describe the appropriate biochemical tests for presumptively identifying gram positive microorganisms.
2. Describe the appropriate biochemical tests for presumptively identifying gram negative microorganisms.
3. Differentiate between Staphylococcus and Streptococcus.
4. Differentiate between fermenters and non-fermenters.
5. Differentiate between members of the Enterobacteriaceae family using biochemical testing.
6. Discuss the proper collection and transportation of specimens for Neisseria species.
7. Identify appropriate media and biochemical testing for isolation of Neisseria species.
8. List quality control microorganisms commonly used in the clinical microbiology laboratory.
9. Perform a forward and reverse ABO typing.
10. Perform a Rh typing.
11. Perform a direct antiglobulin test and an indirect antiglobulin test.
12. Perform compatibility testing between donor and recipient blood.
13. Perform an antibody screen.
14. Perform pipetting procedure.
15. Perform serological tests used to detect streptococcal infections.
16. Calibrate the semi-automated and/or automated analyzers.
17. Perform quality control procedures.
18. Perform specimen processing procedures for Hematology, Immunohematology, Microbiology, Serology, Urinalysis, and Chemistry.

#### Affective Competencies:

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.

3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Dates of Actions:**

**Approved:** May 2006

## Clinical Microbiology I

MLT 205 - 3 credits

### **Description:**

Application of microbiological principles to clinical laboratory practice is introduced. Topics include safety and use of universal precautions, staining, selection and use of media, specimen processing, cultivation and identification of bacteria, and antimicrobial susceptibility testing.

### **Competencies:**

Upon completion of this course, the student will:

#### Learning Competencies:

1. Discuss universal/standard precautions and safety as they apply to the microbiology area.
2. Review the nutritional and environmental requirements of microorganisms.
3. Illustrate the factors affecting bacterial growth.
4. Identify kinds of culture media as to constituents.
5. Classify culture media.
6. Describe the applications of culture media types.
7. Review the use of simple and differential stains in microbiology.
8. Discuss the principles and methods of anaerobic and microaerophilic culturing.
9. Identify the methods of collection, handling and culturing specimens according to their source.
10. Recognize morphological and cultural characteristics of normal body flora.
11. Describe pathogenic and opportunistic bacteria according to
  - a. Morphology,
  - b. Nomenclature,
  - c. Cultural requirements,
  - d. Colonial characteristics,
  - e. Biochemical testing,
  - f. Serological testing,
  - g. Genetic Probes, and
  - h. Other identification methods.
12. Discuss the principles, and interpretations of anti-microbial susceptibility testing.
13. Describe the methods of anti-microbial susceptibility testing.

#### Performance Competencies:

1. Select and use the optimum media for a given specimen.
2. Prepare specimens for microscopic studies in microbiology.
3. Apply simple and differential staining methods.
4. Obtain a pure culture from a mixed culture using the streak plate method.
5. Use manual anaerobic systems.

6. Perform the following:
  - a. Urine colony counts
  - b. Collection and processing of blood cultures
7. Subculture isolates onto differential and selective media:
  - a. Read the results of growth and
  - b. Interpret the results.
8. Perform biochemical and serological tests for the identification of bacteria.
9. Identify pathogenic and opportunistic bacteria using available test and aids.
10. Perform anti-microbial susceptibility test by the standardized disc-agar diffusion method.
11. Perform minimal inhibitory concentration techniques and interpret results.

Affective competencies:

1. Demonstrate responsibility for his/her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** Fall 2001

**Revised:**

## Clinical Microbiology II

MLT 206 - 2 credits

### **Description:**

Mycology, parasitology, virology, and mycobacteriology are included in this course.

### **Competencies:**

Upon completion of this course, the student will:

#### Learning Competencies:

1. Classify human pathogenic mycobacteria.
2. Describe methods of concentration/digesting and decontamination of specimens for acid fast culture.
3. Recall certain biochemical tests used in identifying mycobacterium.
4. Describe the macroscopic and microscopic structural basis for the identification of fungi.
5. Classify fungi according to types of mycoses produced:
  - a. Macroscopic characteristics
  - b. Microscopic characteristics
  - c. Biochemical tests and
  - d. Significance of serological testing.
6. Identify the optimum culture media and conditions for growth for given specimen source.
7. Describe the procedure for slide culturing of fungi.
8. Describe the methods of handling specimens for parasitological examination as to:
  - a. Concentration methods
  - b. Slide preparations and
  - c. Staining.
9. Recall the identifying characteristics of diagnostic forms of intestinal, blood and tissue parasites.
10. State safety precautions for collecting and handling viral specimens.
11. List basic methods of identifying viruses.
12. Describe the general classification system of common human pathogenic viruses.
13. Discuss methods of quality control in microbiology.

#### Performance Competencies:

1. Perform acid-fast concentration and staining techniques on selected specimens.
2. Perform mycological procedures:
  - a. Specimen collection (dermal)
  - b. Microscopic examination in wet mount preparations
  - c. Media selection according to source,
  - d. Culturing under selected conditions,
  - e. Biochemical tests, and

- f. Identification of selected fungi.
3. Identify diagnostic forms of selected parasites.
4. Perform trichrome stain on fecal parasites.
5. Concentrate stool specimens for parasitological examination using the zinc sulfate or ethyl acetate-formalin method.
6. Employ quality control procedures in microbiology.

Affective Competencies:

1. Demonstrate responsibility for his/her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** Fall 2001

**Revised:**

# Hematology I

MLT 215 - 4 credits

## **Description:**

This course includes a study of hematopoiesis and classic methodologies of standard hematology procedures. It also includes the principles of various automated hematology analyzers, histograms and scattergrams. Students will be able to perform basic hematology and coagulation procedures, correlate laboratory data to aid in diagnosis, describe methodology of procedures and their clinical significance. Also included are mechanisms of coagulation, routine coagulation testing, and disease states associated with coagulation abnormalities, platelet evaluation, fibrinolysis, and anticoagulant therapy.

## **Competencies:**

Upon completion of this course, the student can:

### Learning Competencies:

1. Describe the importance of the processes of blood collection procedures (venous and capillary) for hematology and coagulation.
2. Discuss the theory of hematopoiesis using correct nomenclature.
3. Explain the principles and methods of automated instrumentation for hematology.
4. Interpret histogram/scattergram data.
5. Outline the structure of the normal erythrocyte and hemoglobin molecule.
6. Name and compare the principles and methods of hemoglobin determinations.
7. Name and compare the principles and methods of hematocrit determinations.
8. Interpret the sequential development of each blood cell series from blast cells to mature cells:
  - a. Illustrate the distinguishing characteristics of each cell in each series.
  - b. Identify normal peripheral blood cells.
  - c. Differentiate between normal blood cells and immature or abnormal blood cells.
9. Explain the principles and discuss the significance of each of the following tests:
  - a. RBC indices
  - b. Erythrocyte sedimentation rate
  - c. Reticulocyte count
  - d. Osmotic fragility test
  - e. WBC and platelet counts
  - f. Sick cell tests
10. Describe the principles of quality control as applied to hematology and coagulation testing.
11. List the normal reference ranges associated with each parameter of the CBC.

12. Illustrate the coagulation mechanisms involving the intrinsic and extrinsic coagulation pathways, role of platelets and the fibrinolytic system.
13. Discuss the principles and methodology of each of the following coagulation tests:
  - a. Bleeding time
  - b. Prothrombin time
  - c. Partial thromboplastin time
  - d. Clot retraction
  - e. Fibrinogen
  - f. Thrombin clotting time
  - g. Latex D-dimer
14. Discuss and correlate the hematological information and laboratory findings in the following coagulation disorders:
  - a. Hereditary and acquired quantitative platelet disorders.
  - b. Hereditary and acquired qualitative platelet disorders.
  - c. Coagulation factor deficiencies
  - d. Disseminated intravascular coagulation
  - e. Fibrinolysis
15. Explain the clinical findings, properties and diagnosis of coagulation factor deficiencies.
16. Describe the characteristics and effects of circulating anticoagulants.
17. Recognize the purposes, principles and clinical significance of factor assays.
18. Identify collection, handling, storage and preparation of specimens for hemoglobin electrophoresis and discuss the physiological theory behind this methodology.
19. Collect proper capillary and venous blood samples for hematology and coagulation tests.
20. Perform accurate manual white blood cell and platelet counts within established limits of error.
21. Perform accurate hemoglobin determinations.
  - a. Prepare and utilize a standard curve for the cyanmethemoglobin method of hemoglobin determination.
  - b. Use automation to measure hemoglobin levels.
22. Perform accurate spun hematocrit determinations.
23. Calculate the red blood cell indices: MCV, MCH, and MCHC.
24. Prepare and stain blood smears for microscopic examination using manual and automated methodology.
  - a. Recognize and classify normal red and white blood cells.
  - b. Recognize red blood cell and white blood cell abnormalities.
  - c. Perform differential cell counts on normal peripheral blood smears.
  - d. Evaluate red cell morphology; estimate platelets and white blood cells on a blood smear.
25. Perform automated platelet, white blood cell, and red blood cell counts.
26. Perform the following hematology tests:
  - a. Westergren sedimentation rate

- b. Reticulocyte count (corrected and RPI)
  - c. Sickle cell screen
  - d. Osmotic fragility test
  - e. Corrected WBC count
  - f. Thin/thick and buffy coat smears
27. Employ and interpret appropriate quality control procedures.
28. Perform the following coagulation tests:
- a. Bleeding time
  - b. Prothrombin time
  - c. Activated partial thromboplastin time
  - d. Clot retraction
  - e. Fibrinogen
  - f. Thrombin clotting time
  - g. Latex FDP Assay
  - h. Latex D-dimer Assay
29. Demonstrate the correct procedures for operation of automated equipment used in coagulation.

Experiments/Activities:

1. Collect proper capillary and venous blood samples for hematology and coagulation tests.
2. Perform accurate manual white blood cell and platelet counts within established limits of error.
3. Perform accurate hemoglobin determinations.
  - a. Prepare and utilize a standard curve for the cyanmethemoglobin method of hemoglobin determination.
  - b. Use automation to measure hemoglobin levels.
4. Perform accurate micro hematocrit determinations.
5. Define and calculate the red blood cell indices: MCV, MCH and MCHC.
6. Prepare and stain blood smears for microscopic examination using manual and automated methodology.
  - a. Recognize and classify normal red and white blood cells.
  - b. Perform a minimum of 25 differential cell counts on normal peripheral blood smears.
  - c. Evaluate red cell morphology; estimate platelets and white blood cells on a blood smear.
7. Perform automated platelet, white blood cell, and red blood cell counts.
8. Perform the following hematology tests:
  - a. Erythrocyte Sedimentation rate
  - b. Reticulocyte count
  - c. Sickle cell screen
  - d. Osmotic fragility test
9. Employ appropriate quality control procedures.
10. Perform the following coagulation tests:
  - a. Simplate Bleeding time

- b. Prothrombin time
  - c. Activated Partial Thromboplastin time
  - d. Clot retraction
  - e. Fibrinogen.
  - f. Thrombin Clotting Time
  - g. Latex FDP Assay and D-dimer Assay
11. Demonstrate the correct procedures for operation of automated equipment used in coagulation.

**Dates of Actions:**

**Approved:** August 2001

**Revised:** December 2004

## Hematology II

MLT 216 - 3 credits

### **Description:**

This course continues the study of hematology. It includes a study of anemia's, leukemia's, lymphomas, and miscellaneous abnormal white blood cell disorders to assess hematologic changes and correlate laboratory data to diagnosis. Additional topics include body fluids and other special hematologic procedures.

### **Competencies:**

Upon completion of this course, the student will be able to:

#### Learning Competencies:

1. Discuss and correlate the hematological information and laboratory findings in the anemias to include the following:
  - a. Anemia's of blood loss
  - b. Anemia's of impaired erythrocyte production
  - c. Hemolytic anemia's
  - d. Hemoglobinopathies
2. Define and contrast the forms and classifications of the leukemia's and lymphomas.
3. Explain and identify the hematological information and laboratory findings in the leukemia's to include the following:
  - a. Acute non-lymphoblastic leukemia's (FAB types M1-M7)
  - b. Acute lymphoblastic leukemia's (L1-L3)
  - c. Chronic leukemia's
  - d. Myeloproliferative disorders
4. Explain and identify the hematological information and laboratory findings in the lymphomas and myeloproliferative disorders to include the following:
  - a. Hodgkin's disease
  - b. Non-Hodgkin's lymphomas
  - c. Sézary syndrome
  - d. Multiple Myeloma
  - e. Heavy Chain Diseases
  - f. Waldenström's Macroglobulinemia
  - g. Polycythemia vera
  - h. Idiopathic myelofibrosis
  - i. CML
  - j. Essential Thrombocythemia
  - k. Myelodysplasia
5. Explain and identify the hematological information and laboratory findings in the non-malignant leukocyte disorders:
  - a. Infectious mononucleosis
  - b. Gaucher's Disease

- c. Neiman-Pick Disease
  - d. Tay-Sachs Disease
  - e. Pelger-Huet Anomaly
  - f. Chediak Higashi
  - g. May-Hegglin Anomaly
6. Describe the uses, advantages, and disadvantages of hematological stains.
  7. Identify collection, handling, storage and preparation of specimens for hemoglobin electrophoresis and discuss the physiological theory behind this methodology.
  8. Differentiate the findings in normal and abnormal cerebrospinal fluid, serous, and synovial fluids.
  9. Discuss the characteristics of semen and the procedures used in semen examination.
  10. Describe amniotic fluid specimen collection, handling, storage and preparation requirements.
  11. List and define the methods of quality control in hematology and coagulation.

Performance Competencies:

1. Perform differential white cell counts on blood from patients with anemia's, leukemia's and other blood disorders.
2. Evaluate and interpret abnormal red blood cell morphology.
3. Perform cerebrospinal fluid cell counts and differentials.
4. Perform synovial fluid cell counts on practice specimens.
5. Employ quality control procedures in hematology.
6. Thoroughly document all laboratory results using acceptable reporting procedures.

Affective Competencies:

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** August 2001

## Immunohematology I

MLT 225 - 2 credits

### **Description:**

This course includes the principles of immunology in relation to blood banking, blood group systems, donor processing and screening, antibody screening, and blood components.

### **Competencies:**

Upon completion of this course the student will be able to:

#### Learning Competencies

1. Discuss the process of genetics as applied to blood banking.
2. Discuss factors involved and significance of known blood group systems and express the factors symbolically.
3. Describe the principle and application for the following procedures:
  - a. ABO grouping;
  - b. Rh typing;
  - c. Antiglobulin testing, direct and indirect, and
  - d. Compatibility testing.
4. Evaluate the detection and identification of antibodies.
5. Discuss principles and resolution of common problems in antibody screens.
6. Describe specimen collection, labeling, storage and preparation for antibody screens.
7. Describe the techniques, reagents used, and interpretation of test results for routine blood bank procedures.
8. Describe the procedures and requirements for blood donation and hemapheresis.
9. Explain the preparation, storage requirements, labeling, and clinical indication for whole blood and its components.
10. Explain the difference in immediate and delayed hemolytic transfusion reactions.
11. Discuss the methods of quality control in blood banking.

#### **Performance Competencies:**

1. Perform the following:
  - a. Forward and reverse grouping,
  - b. Rh typing,
  - c. Direct and indirect antiglobulin testing (DAT and IAT),
  - d. Antibody screen,
  - e. Routine quality control,
  - f. Donor screening (if applicable locally), and
  - g. Compatibility testing.

2. Practice Immunohematology laboratory safety using universal/standard precautions including disposal of contaminated materials and waste.
3. Perform quality control procedures and evaluate data.
4. Operate and maintain blood bank equipment.

Affective Competencies:

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** August 2001

**Revised:**

## Immunohematology II

MLT 226 - 2 credits

### **Description:**

This course includes antibody screening and panel interpretation, compatibility testing, viral markers and related disease states, hemolytic disease, and HLA markers.

### **Competencies:**

Upon completion of this course, the student will:

#### Learning Competencies:

1. Describe the principle and application for the following procedures:
  - a. Crossmatching, major and minor,
  - b. Absorption and elution techniques.
2. Evaluate the detection and identification of antibodies.
3. Discuss principles and resolution of common problems in antibody screens.
4. Describe specimen collection, labeling, storage, and preparation for antibody screens.
5. Discuss hemolytic diseases including autoimmune hemolytic anemias and hemolytic disease of the newborn.
6. List the viral diseases the present problems to the blood bank when processing donor units.
7. Explain the difference in immediate and delayed hemolytic transfusion reactions.
8. Describe the role of HLA typing in paternity testing, disease association, platelet transfusion, and transplantations.
9. Discuss the methods of quality control in blood banking.

#### Performance Competencies:

1. Perform the following:
  - a. Antibody screen,
  - b. Routine panel for antibody screen detection (elevated and interpret results),
  - c. Crossmatch,
  - d. Fetal screen,
  - e. Processing donor units, and
  - f. Routine quality control.
2. Practice Immunohematology laboratory safety using universal/standard precautions including disposal of contaminate materials and waste.
3. Perform quality control procedures and evaluate data.
4. Operate and maintain blood bank equipment.

#### Affective Competencies:

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** August 2001

**Revised:**

## Clinical Chemistry I

MLT 233 - 3 credits

### **Description:**

A review of basic inorganic chemistry and organic chemistry principles and types of instrumentation commonly used in a medical laboratory are taught. Also included is the study of carbohydrates, non-protein nitrogen compounds, proteins, lipids and enzymes as related to clinical diagnosis. In addition the student will be introduced to quality control procedures, including statistical calculations for graph preparation and interpretation of gathered data.

### **Competencies:**

Upon completion of this course, the student will:

### Learning Competencies:

1. Explain types of instrumentation used in the clinical laboratory.
  - a. List the general groups of automated systems and discuss the components, principles of operation, preventive maintenance, and recognition of unexpected test results and the method of corrective action for the following:
  - b. Recognize the general group of automated systems and discuss the components and principles of operation for the following:
  - c. Describe immunoassay procedures to include:
2. Explain quality control and quality assurance in the clinical laboratory.
3. Explain the chemistry and metabolism of carbohydrates including classification and nomenclature.
  - a. Explain common laboratory methods for the determination of carbohydrate content of any body fluid.
  - b. Describe the test procedures for tolerance tests related to carbohydrate metabolism.
4. Differentiate the types of non-protein nitrogen (NPN) compounds.
  - a. Recognize the compounds from which the NPN group is derived.
  - b. Recognize the laboratory methods for the determination of NPN content of any body fluid.
  - c. Discuss the functional unit of the kidney and renal physiology.
5. Explain the primary, secondary and tertiary proteins related to clinical analysis
  - a. Classify protein compounds
  - b. Discuss the chemistry of protein compounds.
  - c. List the laboratory methods of protein study.
  - d. List the electrophoretic methods of protein separation.
  - e. List the methods of protein separation for the immunoglobulins and related protein compounds.

6. Identify the types of lipids and lipoproteins of clinical significance
  - a. Recognize the procedures for total lipids, fatty acids, triglycerides and cholesterol assays.
  - b. Discuss the metabolism of lipids.
7. Explain the structures specific to enzymes
  - a. Identify the modes of action of enzymes,
  - b. Discuss enzyme nomenclature,
  - c. Discuss the elementary aspect of enzyme catalysis,
  - d. Discuss enzyme kinetics and the factors which govern reaction rates,
  - e. List the origin of the isoenzymes,
  - f. Discuss separation procedures for isoenzymes, and
  - g. Recognize the laboratory method for determination of enzyme activity of body fluid.

Performance Competencies:

1. Prepare reagents for clinical chemistry tests according to procedure.
2. Prepare and utilize standard curves as required for clinical chemistry tests to give results in acceptable range.
3. Calculate standard deviation and the confidence range for a given set of values.
4. Prepare a control graph, indicating trends, shifts and out of control data.
5. Calculate unknown test results utilizing standards in chemistry testing.
6. Perform routine instrument maintenance as recommended by manufacturer.
7. Prepare and construct a standard curve to determine values for unknown solutions.
8. Perform the following quantitative tests on body fluids:
  - a. Glucose,
  - b. Creatinine,
  - c. Urea nitrogen,
  - d. Uric acid,
  - e. Enzyme determinations,
  - f. Total protein,
  - g. Albumin, and
  - h. Cholesterol.
9. Employ quality control procedures in clinical chemistry utilizing the recommended protocol in the facility where the testing is performed.
10. Practice Clinical Chemistry laboratory safety using universal/standard precautions including disposal of contaminated materials and waste.

Affective Competencies:

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.

6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help with necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved: August 2001**

**Revised: August 2003**

## Clinical Chemistry II

MLT 234 - 2 credits

### **Description:**

The physiology and testing of liver function, hormones, electrolytes and acid-base metabolism are presented. Also included are toxicology and therapeutic drug monitoring, tumor markers, and special chemistries.

### **Competencies:**

Upon completion of this course, the student will:

### Learning Competencies:

1. Discuss liver function and related tests.
  - a. Describe bilirubin metabolism,
  - b. Compare the types of abnormal bilirubin metabolism, and
  - c. Describe the procedures for bilirubin.
    - a. Explain the test principles.
    - b. List major reagents.
    - c. State critical conditions to be followed in performing each test procedure.
    - d. Interpret test results
    - e. Discuss the clinical significance
2. Discuss endocrinology and related tests.
  - a. Interpret the effects of hormones on the body,
  - b. Describe the synthesis of hormones, and
  - c. Recognize the clinical significance of hormone testing.
3. Describe the factors that influence the distribution of body water.
  - a. Identify the source and function of electrolytes and minerals in body fluids.
  - b. Discuss the metabolism and balance of electrolytes and minerals.
  - c. Describe the procedures for electrolyte and mineral tests.
    - a. Explain the principle of each test.
    - b. Discuss the test procedures.
    - c. List major reagents.
    - d. State critical conditions to be followed in performing each test procedure.
    - e. Compare normal and abnormal results.
  - f. Discuss the clinical significance.
4. Describe acid-base metabolism.
  - a. Identify the terms used for acid-base parameters.
  - b. Discuss the abnormalities and compensating mechanisms involved in acid-base balance, and
  - c. Explain the procedures for determination of pH, pCO<sub>2</sub>, and pO<sub>2</sub>
    - a. Outline the procedure for the collection and handling of blood samples for the determination of pH and blood gases.
    - b. Explain the critical factors in blood gas analysis

5. Describe the role of toxicology in the clinical laboratory.
  - a. Discuss the classification of toxic materials.
  - b. Discuss the analytical methods used to measure toxic materials.
    - a. Describe specimen collection, handling, storage, and preparation.
    - b. Describe physiological effect of toxic substance on human body.
    - c. Describe the principle of the methods
  - c. Discuss simple drug screens (qualitative) and common drugs of abuse.
  - d. Discuss therapeutic drug monitoring.
  - e. Discuss tumor markers.
    - a. Collection of samples for various tumor markers.
    - b. Describe clinical significance of tumor markers
6. Review special chemistry techniques and clinical significance.

#### Performance Competencies

1. Perform the following selected chemistry tests on specimens and controls by following the appropriate procedure, obtaining the expected results on controls, and following the protocol of the facility where the test is performed:
  - a. Bilirubin
  - b. Electrolytes
  - c. Phosphorus
  - d. Calcium and
  - e. Selected toxicology tests
2. Operate the following instruments, as available, following the protocol of the facility where the test is performed:
  - a. Ion selective electrode
  - b. Spectrophotometer
  - c. Automated chemistry analyzer
3. Employ quality control procedures in chemistry testing according to the protocol of the facility where the test is performed.
4. Practice Clinical Chemistry laboratory safety using universal/standard precautions including disposal of contaminated materials and waste.

#### Affective Competencies

1. Demonstrate responsibility for his or her own behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peers and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his or her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Approved:** August 2001

## Practicum I, Part 1

MLT 2791 – 2 credits

### **Description:**

Develops performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in all assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT program director. This practicum is designed to develop skills with strong supervisory instruction in all assigned departments.

### **Competencies:**

Upon completion of this course, the Medical Laboratory Technician student will have either met half of the following competencies or met each of them to a degree of 50% depending on available clinical resources to be assigned by course instructor:

1. Demonstrate knowledge and understanding of the basic principles and operation of the assigned clinical department which may include:
  - hematology-coagulation
  - immunohematology
  - chemistry
  - microbiology
  - serology
  - urinalysis
2. Process specimens to include identification, centrifugation, separation, and labeling.
3. Perform analytical tests on body fluids, cells, and other substances.
4. Recognize factors that affect procedures and results, and taking appropriate actions within predetermined limits when corrections are indicated.
5. Monitor quality control within predetermined limits established by the clinical affiliates.
6. Perform preventive and corrective maintenance of common laboratory equipment.
7. Apply principles of safety using universal/standard precautions in handling specimens and disposal of contaminated materials and waste.
8. Apply basic scientific principles in learning new techniques and procedures in the laboratory.
9. Relate laboratory findings to common disease processes.
10. Recognize and act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Affective Competencies:

1. Demonstrate responsibility for his/her behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peer and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines

**Dates of Actions:**

**Approved:** May 2006

## Practicum I, Part 2

MLT 2792 – 2 credits

### **Description:**

Develops performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in all assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT program director. This practicum is designed to develop skills with strong supervisory instruction in all assigned departments.

### **Competencies:**

Upon completion of this course, the Medical Laboratory Technician student will have completed the remaining half of the following competencies based upon which part of the competencies were not met during MLT 2791 Practicum I Part 1:

1. Demonstrate knowledge and understanding of the basic principles and operation of the assigned clinical department which may include:
  - hematology-coagulation
  - immunohematology
  - chemistry
  - microbiology
  - serology
  - urinalysis
2. Process specimens to include identification, centrifugation, separation, and labeling.
3. Perform analytical tests on body fluids, cells, and other substances.
4. Recognize factors that affect procedures and results, and taking appropriate actions within predetermined limits when corrections are indicated.
5. Monitor quality control within predetermined limits established by the clinical affiliates.
6. Perform preventive and corrective maintenance of common laboratory equipment.
7. Apply principles of safety using universal/standard precautions in handling specimens and disposal of contaminated materials and waste.
8. Apply basic scientific principles in learning new techniques and procedures in the laboratory.
9. Relate laboratory findings to common disease processes.
10. Recognize and act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Affective Competencies:

1. Demonstrate responsibility for his/her behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peer and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines

**Dates of Actions:**

**Approved:** May 2006

## Practicum II, Part 1

MLT 2792 – 2 credits

### **Description:**

Develops career entry level performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Provides an opportunity for more responsibility and independence with previously learned procedures. Enhances the student's transition to the world of work by providing work experiences in a clinical setting. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT program director.

### **Competencies:**

MLT 2791 is the first half of the last clinical assigning students to a clinical affiliate in various departments of a laboratory: chemistry, hematology, immunochemistry, microbiology, and urinalysis. The program competencies require that students learn laboratory testing in these areas. The clinical setting offers the best learning environment for educational experiences in these areas.

### Learning and Performance Competencies:

Upon completion of this course, the Clinical Laboratory Technician student will have completed the first half of the following competencies based upon which part of the competencies are accessible at the clinical sites scheduled by the course instructor:

1. Clinical hematology-coagulation
2. Clinical immunochemistry
3. Clinical chemistry
4. Clinical microbiology
5. Clinical serology
6. Clinical urinalysis
7. Process specimens to include centrifugation, separation, and labeling.
8. Perform analytical tests on body fluids, cells, and other substances.
9. Recognize factors that affect procedures and results, and taking appropriate actions within predetermined limits when corrections are indicated.
10. Monitor quality control within predetermined limits established by the clinical affiliates.
11. Perform preventive and corrective maintenance of common laboratory equipment.
12. Apply principles of safety using universal/standard precautions in handling specimens and disposal of contaminated materials and waste.
13. Apply basic scientific principles in practicing new techniques and procedures in the laboratory.
14. Relate laboratory findings to common disease processes.

15. Recognize and act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Affective Competencies:

1. Demonstrate responsibility for his/her behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peer and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Dates of Actions:**

**Approved:** May 2006

## Practicum II, Part 2

MLT 2792 – 2 credits

### **Description:**

**Designed to develop career entry level performance skills and professional attitude in the student in assigned areas of the clinical laboratory.**

**Opportunities for more responsibility and independence with previously learned procedures are provided. This course enhances the student's transition to the world of work by providing work experiences in a clinical setting. The course utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in assigned areas of the clinical laboratory. A prescribed schedule of rotations in various departments of the laboratory is provided for each individual student by the MLT program director.**

MLT 2792 is the second half of the last clinical assigning students to a clinical affiliate in various departments of a laboratory: chemistry, hematology, immunohematology, microbiology, and urinalysis. The program competencies require that students learn laboratory testing in these areas. The clinical setting offers the best learning environment for educational experiences in these areas. Students who complete the second half of the last practicum successfully will have achieved career entry-level competency in laboratory testing in these areas.

### Learning and Performance Competencies:

Upon completion of this course, the Medical Laboratory Technician student will have completed the remaining half of the following competencies based upon which part of the competencies were not met during MLT 2791 Practicum II Part 1 and will be able to demonstrate career entry level competencies in various laboratory departments which may include:

1. Clinical hematology-coagulation
2. Clinical immunohematology
3. Clinical chemistry
4. Clinical microbiology
5. Clinical serology
6. Clinical urinalysis
7. Process specimens to include centrifugation, separation, and labeling.
8. Perform analytical tests on body fluids, cells, and other substances.
9. Recognize factors that affect procedures and results, and taking appropriate actions within predetermined limits when corrections are indicated.
10. Monitor quality control within predetermined limits established by the clinical affiliates.
11. Perform preventive and corrective maintenance of common laboratory equipment.

12. Apply principles of safety using universal/standard precautions in handling specimens and disposal of contaminated materials and waste.
13. Apply basic scientific principles in practicing new techniques and procedures in the laboratory.
14. Relate laboratory findings to common disease processes.
15. Recognize and act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Affective Competencies:

1. Demonstrate responsibility for his/her behavior and dependability towards required duties.
2. Follow all institutional policies.
3. Apply the principles of medical ethics.
4. Demonstrate professionalism.
5. Illustrate a satisfactory working relationship with peer and clinical instructors.
6. Exhibit enthusiasm and initiative towards all subject areas.
7. Recognize his/her own limitations and seek help when necessary.
8. Follow established clinical laboratory safety guidelines.

**Dates of Actions:**

**Approved:** May 2006

## Phlebotomy for the Healthcare Worker

PHB 151 - 1 credits

### **Description:**

Course discusses fundamental techniques in proper venipuncture and capillary collection. Included is a study of medical ethics, laboratory terminology, anatomy and physiology of the circulatory system, communication and record keeping, specimen processing, laboratory safety, isolation procedures and special collection.

### **Competencies:**

Upon completion of the course, the student will:

1. Demonstrate the professional image required of a phlebotomist.
  - a. Discuss the principles of medical ethics.
  - b. Interpret the rules of laboratory conduct.
  - c. Discuss the principles of effectively communicating with supervisors, peers, physicians and patients.
2. Explain the significance and use of laboratory requisitions and reports.
  - a. Identify essential information for requisitions and reports.
  - b. Discuss the basic concepts associated with laboratory computers and their relationship to laboratory requisitions and reports.
3. Demonstrate a knowledge of laboratory safety procedures and rules.
  - a. Illustrate the causes of laboratory accidents and methods of prevention.
  - b. Explain the principles of medical asepsis as they apply to clinical laboratory safety guidelines.
  - c. List the Center for Disease Control Laboratory safety guidelines.
4. Relate the importance of the process of collecting, handling, preserving, labeling, and chain of custody for blood, urine, and other specimens.
5. Demonstrate an understanding of the anatomy and physiology of the circulatory system.
6. Demonstrate an understanding of the following aspects of capillary, venous, and arterial blood collection:
  - a. Patient identification
  - b. Site selection and preparation
  - c. Equipment
  - d. Techniques of collection
  - e. Post-collection patient care
7. Demonstrate an understanding of terms and abbreviations used in a clinical laboratory.
8. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other healthcare professionals and with the public:
  - a. Giving a laboratory report by phone to a physician.
  - b. Obtaining a clarification on a request from a nursing station by phone.
  - c. Collecting a blood specimen from a patient.

- d. Filling out a laboratory requisition and report.
- 9. Demonstrate use of established laboratory safety procedures and CDC guidelines.
- 10. Explain components of the “blood collection system”.
- 11. Explain common laboratory tests.
- 12. Demonstrate proper blood collection procedures:
  - a. Collection of a venous blood specimen using Vacutainer methodology.
  - b. Collection of a venous blood specimen using the syringe system.
  - c. Collection of a specimen by capillary technique.
  - d. Other systems
- 13. Explain “special collections.”

**Approved:** August 2001

**Revised:** August 2003

## Phlebotomy: Clinical Experience

PHB 152 - 1 credits

### **Description:**

This course introduces the student to clinical practice in the phlebotomy department of the laboratory. The student will begin to develop performance skills in routine venipuncture and capillary collection procedures emphasizing performance skills in routine venipuncture and capillary collection. This course utilizes and depends upon external institutions to insure adequate clinical education and training. A prescribed schedule of clinical rotations in the phlebotomy area will be provided for the student by the instructor.

### **Competencies:**

Upon completion of the course, the student will be able to:

1. Organize appropriate supplies and equipment for collection procedure.
2. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, and other health care professionals.
3. Demonstrate an understanding of the significance and use of laboratory requisitions and reporting
4. Identify proper specimen to be collected for test ordered.
5. Guide patient into a safe and comfortable position for the phlebotomy procedure.
6. Demonstrate the ability to identify appropriate collection site.
7. Cleanse the collection site prior to collection.
8. Anchor vein and insert needle with bevel up.
9. Calmly change position of needle if blood does not flow.
10. Collect specimens in the correct order of draw for vacutainer system and syringe.
11. Release tourniquet before withdrawing needle from arm.
12. Withdraws needle from arm smoothly.
13. Apply pressure to site after withdrawing needle.
14. Gently mixes anticoagulated tubes after collection.
15. Check collection site to ascertain bleeding has stopped.
16. Label tubes with appropriate patient and technician information.
17. Apply principles of safety using universal precautions in the collection and handling of specimens.
18. Practice lab safety during laboratory procedures including disposal of contaminated materials and waste.
19. Continuously display respect for patient confidentiality.
20. Demonstrate proper blood collection procedures:
  - a. Collection of a venous blood specimen using vacutainer methodology
  - b. Collection of a venous blood specimen using the syringe system.
  - c. Collection of a specimen by capillary technique.
21. Demonstrate an understanding of the basic principles of special collections.

**Approved:** August 2001

## **Faculty Information**

**Program Director:** Michael Rose, MS, MLS (ASCP)

### **Education:**

#### **Eastern Kentucky University**

B.A.-Medical Technology-December 1992

Masters- Industrial Education- May 2008

### **Certification/Licensure:**

Tennessee State Licensure-MT-2010

Tennessee State Licensure -Supervisor-2012

American Society of Clinical Pathology, 2008

**MLT Instructor:** Tracy Adkins, BS MLT (ASCP) cm

### **Education:**

#### **Southeast Community & Technical College**

AAS Clinical Laboratory Technology, 2007

#### **Lincoln Memorial University**

Bachelor of Science, Management/ Leadership

#### **Northern Kentucky University**

Masters of Health Science, in progress

### **Certification/Licensure:**

American Society of Clinical Pathology, 2007

State of Tennessee Medical Laboratory Board of  
Licensure, 2007

### **Causes for Dismissal:**

The following actions will result in dismissal from the MLT program:

1. Misuse or destruction of school or hospital property
2. Two consecutive or concurrent probations (academic, attendance, disciplinary)
3. Excessive absence or tardiness
4. Cheating, lying or theft (including falsification of, or misrepresentation on, any official educational or medical documents, i.e. time sheets, lab reports, etc)
5. Unprofessional conduct especially breach of CONFIDENTIALITY
6. Malpractice or unsafe practice
7. Objectionable behavior with patient or staff
8. Non-payment of monies owed
9. Use of dangerous drugs or alcohol

### **Rules and Regulations:**

1. Students are expected to conduct themselves in a professional manner while on campus and at clinical sites. Unprofessional behavior might include:
  - Gossip
  - Cheating
  - Disrespect of fellow students, faculty, clinical site employees or patients
  - Breach of confidentiality
  - Excessive absence or tardiness
2. Students are subject to all rules and regulations set by each clinical site.
3. Students are subject to all rules and regulations specified on course syllabi.
4. Students are subject to all rules and regulations specified in the KCTCS Code of Student Conduct
5. It is imperative that all students be aware of and follow lab safety rules on campus and at clinical sites.
6. Students must adhere to college dress codes while on campus.
7. Students must adhere to clinical dress codes while at clinical sites.
8. Good personal hygiene and neat appearance must be maintained at all times.

### **Student Rights and Responsibilities:**

All Southeast Kentucky Community and Technical College students are afforded rights and responsibilities as set forth in the Student Handbook. The Student Handbook will be provided to all entering MLT students and can be accessed on the college website at the following address:  
[http://www.secc.kctcs.edu/StudentAffairs/ssdn/consumer\\_info/studenthandbook.pdf](http://www.secc.kctcs.edu/StudentAffairs/ssdn/consumer_info/studenthandbook.pdf)

### **Student Grievance Policy:**

Students who feel they have been discriminated against or subjected to harassment by students or employees because of their race, color, national origin, sex, sexual orientation, marital status, disability, age, religion, beliefs, political affiliation, or veteran status have the right to pursue an informal and/or formal grievance.

#### **GRIEVANCE COORDINATOR**

Larry Warf, EEO Coordinator

Southeast Kentucky Community and Technical College

Cumberland, KY 40823

606-589-2145, Ext. 13026 OR

606-589-3026

#### **INFORMAL PROCEDURE**

Most difficulties can be resolved by talking to someone. Therefore, students are encouraged to discuss these problems promptly and candidly with the EEO/Diversity Coordinator.

1. If a student feels that he/she has been discriminated against, the student shall bring the problem to the attention of the EEO/Diversity Coordinator within five (5) business days of learning of the cause of the grievance. The coordinator will conduct a preliminary investigation of the grievance.
2. The student, EEO/Diversity Coordinator, and other involved parties will work informally to negotiate a solution within five (5) business days. The formal procedure should be completed in approximately ten (10) business days from learning of the cause of the grievance.
3. If the grievance cannot be satisfactorily resolved by working informally, the student may proceed within five (5) business days to file a written grievance through the Formal Procedure.

## FORMAL PROCEDURE

### Step 1:

- Within fifteen (15) days of learning of the grievance, a student will file a written notice with the EEO/Diversity Coordinator. They may use the Grievance Form, which is available from the EEO/Diversity Coordinator. The written notice shall identify the nature of the alleged discrimination, the date(s) of occurrence, and the desired result, and shall be signed and dated by the student filing the grievance.
- As soon as possible, the EEO/Diversity Coordinator will initiate an adequate, reliable impartial investigation of the grievance.
- Within ten (10) business days of receiving the student's written notice, the EEO/Diversity Coordinator shall respond in writing to the student. The response shall summarize the course of the investigation and determine the validity of the grievance and the appropriate resolution.

### Step 2:

- If the student is not satisfied with the coordinator's response, the student may appeal in writing to the President of Southeast Kentucky Community and Technical College (or designee) within five (5) business days of the Step 1 response. The Step 2 appeal must contain all written documentation from Step 1 and the student's reasons for not accepting the coordinator's response.
- Within seven (7) business days from receiving the written Step 2 appeal, the President (or designee) will respond in writing to the student as to the action to be taken.

### Step 3:

- If the grievance is not resolved to the satisfaction of the student, the student may file an appeal according to the KCTCS Code of Conduct Section 1.2.8.1.

The deadline established in this procedure may be waived in exceptional circumstances by the President of Southeast Kentucky Community and Technical College (or designee).

### **Due Process/Program Grievance**

The program respects the student's right to grievance or appeal decision, which they perceive to be unfair.

The program follows the College's Academic Appeals Policy found in the KCTCS Code of Student Conduct.

Refer to the KCTCS Code of Student Conduct for the detailed steps to follow, located at the last section of this handbook or can be accessed at:

<http://www.kctcs.edu/student/code.htm>

## **MLT Program Attendance Policy**

### **Courses:**

It is imperative students attend both the lecture and lab. Attendance is recorded at every meeting. (Falsifying any records will result in automatic dismissal from the program). Students may miss up to 8 class hours. The grade will drop a subsequent letter grade for each missed 2 hour class period thereafter.

Labs and Quizzes cannot be made up. Exams can be scheduled for make up within one week and the student must take it upon themselves to do so.

**\*\*Habitual absences/tardiness will not be tolerated. Three tardies will count as an absence. Five minutes late equals one tardy. Excessive absences constitutes grounds for dismissal from the program.**

### **Clinical Practicum:**

Because of its very nature, practicum requires 100% attendance. Accordingly, any student who does not complete the total number of hours scheduled will receive an "E" for this course, resulting in dismissal from the program.

For this class, each student must complete 120 hours of clinical time. Students will be scheduled for 5½ hours of clinical time each day throughout the semester.

If a student attends all of the scheduled time during the semester, s/he will log between 165 and 176 clinical hours depending on holidays, the clinical site and scheduled days of attendance.

**Students will not be allowed to make up any clinical time unless approved by the clinical site and instructor** and must complete the 120 clinical hours during regularly scheduled times AND by the last day of regular classes (prior to finals week). This means there will a time allotment of 15-26 hours to account for any individual absences.

**\*\*\*If you must miss a clinical day you are required to call the clinical site as well as leave a voice mail message for your instructor. Failure to do so will result in automatic dismissal from the program. There is no such thing as an excused absence in this course.**

**NOTE: The above rules apply to ALL students regardless of any excuses provided to the instructor. The attendance policy is not an attempt to**

**measure dependability, although it may inadvertently do so. Its purpose is to insure that students who successfully complete the course are sufficiently exposed to its content.**

### **Pregnancy or Sick -Leave Policy**

A student can participate in all program activities contingent upon the student's clinician approval. Disclosure of pregnancy or chronic illness status to the Program Director or Instructor is strictly voluntary. **The student must adhere to the MLT Program Attendance Policy for both course work and clinical practicum.**

### **Guidelines**

1. Disclosure of pregnancy status to Program Director or Instructor is strictly voluntary.
2. If pregnancy or chronic illness is documented and student elects to remain in the program, the following options must be exercised by the student:
  - a. The student must receive medical clearance by physician that she/he will be physically able to participate in normal educational/practicum activities conducted by the Medical Laboratory Technician Program
3. The following options are available to students who decline acceptance or continuation in the program:
  - a. Student may ask to be reinstated for the subsequent class of the next program year.
  - b. Student can drop and receive "I" Incomplete.

**The following activities are performed (but not limited to) on a daily basis by all Medical Laboratory Technology students:**

1. Work in a clinical or hospital environment where there is a potential risk of exposure to blood borne pathogens/ communicable diseases.
2. Exposure to biohazard materials/chemicals
3. Stand for prolonged periods of time
4. Operate laboratory equipment
5. Lift, carry, or push materials or objects (5-30 lbs.)
6. Reach for items above head level
7. Bend extensively throughout daily activities
8. Participate in invasive procedures such as phlebotomy for student lab,

## **KCTCS Administrative Policies & Procedures**

### **6.7 Drug Testing**

KCTCS does **NOT** require drug testing for entry into instructional programs or any courses therein. Students who participate in instructional programs that require completion of practical experiences in affiliated institutions that do require drug testing will be subject to the policies below:

1. Students will be notified of the procedure to follow for drug testing.
2. The cost of all drug screening required by affiliating clinical agencies will be borne by the student or affiliating clinical agency, as determined by the affiliating clinical agency.
3. If a student tests positive for drugs, the student has the right to request a second drug test. The cost of the second drug test will be borne by the student.
4. If a student fails to submit to a required drug screen, if a student fails the first drug test and chooses not to retest, or if the student fails both the first and second drug test, the student will not be allowed to participate in the required practical experience. Failure to participate in required practical experiences shall be grounds for dismissal from the program.
5. The student has the right to reapply to the program, subject to the program's current readmission policy. The readmission policy may include a requirement for successful completion of a drug counseling program.
6. Confidentiality of the student will be protected.

### **Background**

Because clinical assignments are an integral component of the Medical Laboratory Technician program, successful completion of clinical assignments is mandatory. Clinical affiliates may require students to undergo drug testing before beginning the clinical experience. As noted in the Memorandum of Agreement between the clinical facility and the college, the student agrees to obtain, at their expense, all health screenings, immunizations, criminal background checks, and drug screenings as required by the affiliating agency. Clinical assignments will not be based on whether or not a clinical facility requires background or drug tests.

KCTCS institutions are committed to providing a safe environment for students, faculty, and staff. For this reason, KCTCS has adopted the following drug-free policy:

Being *under the influence* of alcohol or other drugs or the use, possession, distribution, manufacture, or sale of illegal or unauthorized drugs is prohibited and is punishable as a felony offense on campus or within 1000 yards of campus. Conduct that violates this definition, poses unacceptable risks, and disregards the health, safety and welfare of members of the KCTCS college community shall result in disciplinary action up to and including suspension or termination. The KCTCS colleges are in compliance with the Drug-Free Workplace Act of 1988 and Drug-Free Schools and Communities Act amendment of 1989.

The term “campus” includes classroom, laboratory, and **clinical** settings.

Students who violate this policy are subject to review under Article V of the *KCTCS Code of Student Conduct*, Section 5.2.10, which states that manufacturing, possessing, *using*, selling, or distributing any type of controlled substance or illegal drug is considered a punishable disciplinary offense.

### **Informed Consent**

**All** students who enroll in the MLT program are subject to drug screening prior to beginning clinical affiliations. Since clinical affiliate requirements vary, students may be subject to multiple drug screening examinations during the course of their progress in the MLT program. Students will be required to sign the MLT program Drug Screening Policy form.

### **Cost**

As noted in the *KCTCS Administrative Regulations*, Section 6.7 and in the Statement of Understanding of the Memorandum of Agreement, the cost of all drug screening required by affiliating clinical agencies will be borne by the student or affiliating clinical agency, as determined by the affiliating clinical agency. If the student chooses to repeat the drug screening, the student is also responsible for the cost of the repeat testing procedure. Neither the College, the MLT program, KCTCS, nor any of its employees shall absorb drug screening costs that arise from student placement at an affiliating clinical agency.

## **Drug Screening Facilities**

Drug screenings will be conducted by qualified laboratories that follow the National Institute on Drug Abuse (NIDA) guidelines. Qualified facilities located in the College's service area include:

- LabCorp Facilities

## **Timing**

Students must have the results of their drug screening in hand before the clinical rotation begins. In order to allow sufficient time for processing and backup testing if necessary, students must submit to an approved screening facility at least 30 days prior to the first day of clinical. Students taking prescription or over the counter medications should provide the testing facility with a list of these medications at the time of testing. Ordinarily Refusal to submit to testing will be treated as a positive test result.

## **Negative Results**

Students who test negatively for drugs will be allowed to participate in clinical rotations, but may be required to submit to further tests if required by the affiliated clinical agency.

## **Positive Results**

Students whose drug screening results are found to be positive have the right to request a second drug screening examination. The student is responsible for the cost of the second drug screen.

### **Two Positive Results**

If the second drug test is positive, in accordance with Section 5.3.9 of the *KCTCS Code of Student Conduct*, the student will be removed from clinical, and dropped from the MLT program. The student may reapply to the program according to the program's readmission policies. Readmission is not guaranteed.

### **One Positive, One Negative Result**

If the second drug test is negative, the student may continue studies and be placed at an alternate clinical facility. The alternative placement is dependent upon availability of clinical sites and supervision. If an alternative clinical site is not available, resulting in an inability to complete the assigned clinical

experience, the student may be dropped from the program. The student may be readmitted when the clinical course is offered again.

### **Confidentiality**

All students will sign the MLT program Drug Screening Policy form giving consent for the results of drug screening tests to be submitted to the MLT Program Coordinator or instructor. The Program Coordinator will keep confidential all information obtained from the drug screen. The MLT program and the College shall have the right to use and disclose the results of drug testing required by this policy in connection with internal academic purposes and in connection with the defense of any student grievance and any claims filed by a student, or by his/her personal representative, in any court of law or with any state or federal administrative agency.

## **Disability Statement**

Students in this course who need, or who believe they will need, any academic adjustments, auxiliary aids, or other accommodations because of the functional limitations of a documented disability, should NOT approach the instructor with this matter. They should, instead, visit the Disabled Students Service (DSS) Coordinator, Rebecca Parrott-Robbins for the Pineville Campus, at the Counselor's Office, or call (606) 248-0256.

Students in this course who just want to know more about disability services, the colleges' disability services policies and procedures, legal cases and literature pertaining to disability issues can visit the KCTCS Engaging Differences web site at [www.kctcs.edu/edp](http://www.kctcs.edu/edp).

## **Consumer Information**

The following information is available on the SKCTC homepage: [www.Southeast.kctcs.edu](http://www.Southeast.kctcs.edu):

- Aids Guidelines
- Code of Student Conduct
- Crime Awareness
- Drug Free Policy
- Financial Aid Information
- Graduation Rate and Transfer Out Rate
- Hepatitis B
- KCTCS Community College Catalog
- Sexual Harassment Policy
- Student Grievance Procedures
- Student Handbook
- Student Rights under FERPA

Go to Student Services and click on Consumer Information.

Paper copies of all the documents listed above are available upon request at the Admissions Office on any campus.

## **Clinical Affiliates**

### **Middlesboro ARH**

3600 West Cumberland Avenue  
Middlesboro, Kentucky 40965

### **Pineville Community Hospital**

850 Riverview Avenue  
Pineville, Kentucky 40977

### **Covenant Health Claiborne Medical Center**

1850 Old Knoxville Road  
Tazewell, Tennessee 37879

### **Jellico Community Hospital**

188 Hospital Lane  
Jellico, Tennessee 37762

### **Harlan ARH**

81 Ball Park Road  
Harlan, Kentucky 40831

### **Knox County Hospital**

80 Hospital Drive  
Barbourville, Kentucky 40906

### **Whitesburg ARH**

240 Hospital Road  
Whitesburg, Kentucky 41858

### **Tennova Healthcare Lafollette Medical Center**

923 East Central Avenue  
Lafollette, Tennessee 37766

### **Norton Community Hospital**

100 15<sup>th</sup> Street NW  
Norton, Virginia 24273