

# Medical Laboratory Science | One Year Program: Scope & Sequence

## Semester 1

### MLS103 - Laboratory Assisting I

(95 days)

#### District Pre-Assessment

#### Unit 1 Introduction to the Medical Laboratory and

##### Healthcare team

(5 days- 4 Classroom, 1 Lab)

- Roles and Responsibilities
- Professionalism
- Career Research

CTSO Integration (Leadership Skills): HOSA Officer Elections, Health Career Competition, HOSA T-shirt Design, Program Of Work, Bylaws, Submission Of All Chapter Forms, CTSS Officer Training, HOSA Officer Visit

Work-Based Learning: Career Research

Professional Skills: 1.0, 2.0, 4.0, 5.0, 7.0, 9.0

Academic Standards: 7.RP.A.3, ELA.11-12.W.8, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.L.6, ELA.11-12.SL.4

Technical Standard: 3.4, 3.5

#### Unit 2 Safety and Infection Control

(15 days- 5 Classroom, 10 Lab)

- Medical Asepsis
- \*OSHA
- Lab Safety, Controls
- Bloodborne Pathogens
- Infection Control
- PPE
- CPR/First Aid
- CAP & Joint Commission
- AABB

CTSO Integration (Leadership Skills): CTSS Friday's, chapter meeting

Work-Based Learning: OSHA, Bloodborne Pathogens Cert, CPR

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0

Academic Standards: ELA.11-12.W.8, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.L.6, ELA.11-12.SL.4

Technical Standard: 1.1 - 1.17

#### OSHA

\* Occupational Safety and Health Administration (OSHA)- Will be trained during the program, scheduled date and time subject to change.

#### AHA-CPR AED Certification

#### HOSA Fall Leadership Conference

#### Unit 3 Legal and Ethical Compliance

(5 days- 4 Classroom, 1 Lab)

- HIPAA
- Local, State and Federal Laws
- Consents/Scope
- CLIA

CTSO Integration (Leadership Skills): CTSS Friday's, chapter meeting, Biotechnology competition, Clinical Laboratory Science competition, HOSA Fall Leadership Conference

Work-based Learning: Career Exploration, Guest Speaker

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 2.1 - 2.5, 3.1 - 3.6, 4.1

#### Unit 4 Regulatory and Quality

(5 days- 4 Classroom, 1 Lab)

- Quality Control and Quality Assurance
- Specimen Storage- Frozen & Refrigerator Temp Maintenance
- Calibration and monitoring of instruments
- Quality Control Logs

CTSO Integration (Leadership Skills): CTSS Friday's, chapter meeting, Biotechnology competition, Clinical Laboratory Science competition

Work-based Learning: Career Exploration, Guest Speaker, Simulated Lab Experience

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 6.1-6.9, 13.1-13.4

#### Unit 5 Body Systems and Medical Term

(10 days- 5 Classroom, 5 Lab)

- Root words
- Prefixes
- Suffixes
- Conversions
- Measurements

CTSO Integration (Leadership Skills): Chapter meeting, HOSA Medical Terminology, Medical Math, Medical Spelling, Medical Reading, Competitions

Work-based Learning: Simulated Lab Experience

Professional Skills: 1.0, 2.0, 3.0, 4.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.L.4, 5.NF.B.3, 5.NF.B.6, 6.RP.A.3

Technical Standard: 4.2, 4.3, 4.5, 5.4, 6.7, 7.1, 12.6

## Unit 6 Cardiovascular System

(5 days- 4 Classroom, 1 Lab)

- Function & Structure
- Diseases & Disorders
- Diagnostic Testing
- Quality Control
- Anatomy of the Arm
- Identify Reference Values
- Respond to Critical Values

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions

Work-Based Learning: Simulated Lab

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10,

ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3,

ELA.11-12.SL.4, HS.L2U1.19, 5.NF.B.6, 6.RP.A.3, 7.EE.B.3,

G-GMD.A.3

Technical Standard: 4.10, 4.11, 5.3, 5.5, 5.8, 5.11, 5.12, 5.14, 5.15, 5.16, 6.1 - 6.7, 12.1 - 12.6

## Unit 7 Introduction to venipuncture

(10 days- 5 Classroom, 5 Lab)

- Anatomy and Physiology of arm and hand
- Terms and abbreviations of common laboratory tests
- Lab Requisitions
- Phlebotomy Equipment

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting

Work-based Learning: Simulated Lab Experience

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10,

ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 4.1-4.7

## HOSA Regional Online Testing

## Unit 8 Phlebotomy

(20 days- 3 Classroom, 17 Lab)

- Fundamentals
- Collect and Process Specimen

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting

Work-Based Learning: Simulated Lab Experience, Guest Speaker

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10,

ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3,

ELA.11-12.SL.4, 5.NF.B.6, 6.RP.A.3, 7.EE.B.3, G-GMD.A.3

Technical Standard: 4.8, 4.9, 5.3, 5.5, 5.8, 5.11, 5.12, 5.14, 5.15, 5.16, 6.1 - 6.7, 12.1 - 12.6

## Unit 9 Dermal Collections

(5 days- 2 Classroom, 3 Lab)

- Capillary Punctures
- Infant Collections
- Microhematocrit

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting

Work-based Learning: Simulated Lab Experience

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10,

ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 4.4, 4.8, 4.11

## Semester Exam

Technical Standard: 8.1 - 8.5, 9.1 - 9.5, 10.1 - 10.2, 11.1 - 11.6

## Semester 2

### MLS104 - Laboratory Assisting II

(88 days)

#### HOSA State Online Testing

#### Unit 10 Non Blood Collections

(5 days- 2 Classroom, 3 Lab)

- Urinalysis
- Semen/Feces and Other Bodily Fluids
- Collection Equipment
- Terms Used for Collection
- Chain of Custody
- ABG's

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting  
Work-Based Learning: Simulated Lab Experience, Guest Speaker

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 5.1-5.8, 7.1-7.4

#### Unit 11 Specimen Processing

(5 days- 2 Classroom, 3 Lab)

- Centerfuge
- Aliquots
- Specimen Storage

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting  
Work-Based Learning: Simulated Lab Experience, Guest Speaker

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 5.4, 5.10, 5.11- 5.18

#### HOSA Regional Competition

#### Unit 12 Hematology

(15 days- 5 Classroom, 10 Lab)

- Coagulation
- ESR
- Bleeding Time
- Stain/Blood Films

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting  
Work-Based Learning: Simulated Lab Experience, Guest Speaker

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3,

ELA.11-12.SL.4, 5.NF.B.6, 6.RP.A.3, 7.EE.B.3, G-GMD.A.3

#### Unit 13- Blood Banking

(8 days- 5 Classroom, 3 Lab)

- Immunology
- Immunohematology
- Massive Transfusion Protocols
- Blood Typing

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting  
Work-Based Learning: Simulated Lab Experience, Guest Speaker

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 5.9, 8.1-8.5, 6.4, 6.5, 6.8

#### Unit 14 Micro /Chemistry

(7 days- 2 Classroom, 5 Lab)

- Biological Safety Hood
- Blood Cultures
- Inoculate Media
- PCR Testing
- Incubation
- Dilutions and Calculations

CTSO Integration (Leadership Skills): Biotechnology and Medical Laboratory Science Competitions, chapter meeting  
Work-Based Learning: Simulated Lab Experience, Guest Speaker

Professional Skills: 1.0, 2.0, 4.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10, ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3, ELA.11-12.SL.4

Technical Standard: 11.1-11.9, 12.1-12.6

#### Unit 15 Professional development

(5 days- 4Classroom, 1 Lab)

- Resume Building
- Interview Preparation
- Mock Interviews

CTSO Integration (Leadership Skills): Interviewing Skills and Job Seeking Skills Competitions, chapter meeting  
Work-Based Learning: Resume writing, mock interviews, interview preparation

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0

Academic Standards: ELA.11-12.W.4, ELA.11-12.W.5, ELA.11-12.SL.4, ELA.11-12.SL.6

Technical Standard: 3.4, 3.5

#### HOSA State Competition

### **Unit 16 PBA**

(20 days- 5 Classroom, 15 Lab)

- PBA Lab Scenarios
- Job Shadowing
- Externship
- Guest Speakers

CTSO Integration (Leadership Skills): chapter meeting

Work-Based Learning: Simulated Lab Experiences, job shadowing, guest speakers

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10,

ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3,

ELA.11-12.SL.4, 5.NF.B.6, 6.RP.A.3, 7.EE.B.3, G-GMD.A.3

Technical Standards: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0,

9.0, 10.0, 11.0, 12.0, 13.0

### **Unit 17 CPT review**

(10 days- 4 Classroom, 6 Lab)

- CPT Test Prep &
- CPT Certification Exam
- Lab Practice
- District Assessment Review

CTSO Integration (Leadership Skills): chapter meeting

Work-Based Learning: Industry Credential

Professional Skills: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0

Academic Standards: ELA.11-12.RI.7, ELA.11-12.RI.10,

ELA.11-12.W.4, ELA.11-12.W.9, ELA.11-12.SL.3,

ELA.11-12.SL.4, HS.L2U1.19, 5.NF.B.6, 6.RP.A.3, 7.EE.B.3,

G-GMD.A.3

Technical Standard: 4.8, 4.9, 4.13, 5.3, 5.5, 5.8, 5.11, 5.12,

5.14, 5.15, 5.16, 6.1 - 6.7, 12.1 - 12.7

### **Semester Exam**

#### **District Post-Assessment**

#### **Technical Skills Assessment**

#### **Registered Phlebotomy Technician Exam (RPT)**

American Heart Association (AHA)

Common AZCCR Math Standards (CAMS)

English Language Arts Standards (ELAS)

Health Occupations Students of America (HOSA)

National Healthcare Association (NHA)