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School of Laboratory Science



# Medical Laboratory Science and Phlebotomy Technician Policy Handbook


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## SCHOOL OF LABORATORY SCIENCE

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# Policy Handbook

Effective Summer, 2023

 **HennepinHealthcare**  
HCMC Clinical Laboratories  
701 Park Ave, P4  
Minneapolis, MN 55415  
[www.hennepinhealthcare.org](http://www.hennepinhealthcare.org)



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# Introduction to Hennepin Healthcare School of Laboratory Science

## About Hennepin Healthcare and HCMC

With HCMC, a 484 bed hospital, Level 1 Adult and Pediatric Trauma Center and the adjacent Clinic and Specialty Center, the Hennepin Healthcare campus is at the heart of medical care in downtown Minneapolis.

Hennepin Healthcare has a long tradition of medical education since HCMC's establishment as the first teaching hospital in Minnesota. HCMC serves as a major teaching hospital for resident physicians, medical students, nurses, and other members of the health care team; collaborates and affiliates with other hospitals and educational institutions to fulfill its education responsibilities, and ensures that all of its graduate medical education programs meet the requirements of the Accreditation Council for Graduate Medical Education and individual Residency Review Committees where applicable. GME staff members facilitate the work of the hospital GME Committee and provide overall administration of the GME Program.

HCMC currently offers free-standing residency programs and fellowships that provide 280 resident physicians with clinical experience serving a broad mix of patients from diverse cultural and socio-economic backgrounds. These patients are drawn primarily from a population area of one million which includes the City of Minneapolis.

Hennepin Healthcare and HCMC Laboratories provide comprehensive laboratory services in Clinical and Anatomic Pathology. The state-of-the-art laboratories are staffed by more than 180 FTEs, plus 10 medical staff members (pathologists/PhDs), who perform and analyze more than 3 million lab tests per year. The central lab supports several ancillary labs (off-site and on-site clinics and point-of-care settings), offering student's outstanding educational environments in both large and small laboratory settings.

## Laboratory Program Accreditation and Licensing

The laboratory programs at Hennepin Healthcare are conducted under the guidelines of the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). NAACLS is an international agency for accreditation and approval of educational programs in the medical laboratory sciences and related health professions. During the most recent accreditation visit in 2016 the Medical Laboratory Science Program was awarded a 10 year accreditation through April, 2027. In 2021 the Phlebotomy Technician Program was awarded a 5 year accreditation through April, 2027.

## STUDENT POLICIES

NAACLS  
5600 N. River Road  
Rosemont, IL 60018  
773-714-8880

The Hennepin Healthcare School of Laboratory Science includes the Medical Laboratory Science program and the Phlebotomy Technician Program. It is licensed as a private career school with the Minnesota Office of Higher Education pursuant to Minnesota Statutes, sections 136A.821 to 136A.832. Licensure is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.

Minnesota Office of Higher Education  
1450 Energy Park Drive, Suite 350  
St Paul, MN 55108-5227

### **Affiliated Universities**

The Hennepin Healthcare School of Laboratory Medicine MLS program is affiliated with 5 area universities and works closely with these affiliates to coordinate our student's education. The Phlebotomy Technician program does not require students to be associated with a specific college or university.

#### **Minnesota State University, Mankato**

Mankato, MN 56001  
Acting Program Director: Penny Knolich, DVM, PhD  
(507) 389-5736

#### **St. Cloud State University**

St. Cloud, MN 56301  
Program Director: Louise Millis MS, MLS (ASCP)<sup>CM</sup>  
320-308-5438

#### **University of Wisconsin - LaCrosse**

La Crosse, WI 54601  
Program Director: Michael A. Lazzari, DHed, MS, MLS (ASCP)<sup>CM</sup>  
608-785-6479

#### **Winona State University**

Winona, MN 55987  
Program Director: Peter Knopick, PhD, MLS(ASCP)<sup>CM</sup>  
507-457-5271

## STUDENT POLICIES

### Michigan Technological University

Houghton, MI 49931

Program Director: Claire Danielson, MS, MLS(ASCP)<sup>CM</sup>

906-487-2120

### Hennepin Healthcare School of Laboratory Science Administration



**James Fink, MD, PhD**

Medical Director

B.S., University of Minnesota

PhD, University of Minnesota

MD, University of Minnesota



**Marianne Knutson, MBA, MT (ASCP)**

Laboratory Manager

MBA Ashford University, San Diego, CA

BS Minnesota State University – Mankato, Mankato, MN

MT (ASCP) Hennepin County Medical Center, Mpls, MN

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**Lynn Poth, MS, MT (ASCP)**

Lab Education Program Director

M.S, University of North Dakota, Grand Forks, ND

B.S., University of Texas/El Paso, El Paso, TX

MLS (ASCP), William Beaumont Army Medical Center and

Providence Hospital, El Paso, TX

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## **Hennepin Healthcare Phlebotomy Technician Program Faculty**

### **Lynn Poth, MS, MT (ASCP)**

Lab Education Program Director/Instructor

M.S., University of North Dakota/Grand Forks, Grand Forks, ND

B.S., University of Texas/El Paso, El Paso, TX

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Providence Hospital, El Paso, TX

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### **Karen Nelson, MT (ASCP)**

Phlebotomy Supervisor

B.A., University of Missouri, St Louis, MO

MT(ASCP) Westmoreland Hospital, Greensburg, PA

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## **Hennepin Healthcare MLS Program Faculty**

### **Katie Rose Stock, MLS (ASCP)CM**

Medical Lab Scientist Specialist - Immunohematology

B.S., University of Rhode Island

MLS (ASCP), Rhode Island Hospital

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### **Johanna Henly, MLS (ASCP)<sup>CM</sup>**

Medical Lab Scientist – Microbiology

B.S., University of Minnesota, Minneapolis, MN

MLS (ASCP), United Hospital & Medtox, St Paul, MN &

North Memorial Hospital, Robbinsdale, MN

[johanna.henly@hcmcd.org](mailto:johanna.henly@hcmcd.org)



### **Lisa Totzke, MLS (ASCP)<sup>CM</sup>**

Medical Lab Scientist – Hematology/Coagulation

B.S., Minnesota State University Mankato, Mankato, MN

MLS (ASCP), HCMC, Minneapolis, MN

[lisa.totzke@hcmcd.org](mailto:lisa.totzke@hcmcd.org)



## STUDENT POLICIES



**Katie Carlson, MLS (ASCP)<sup>CM</sup>**

Medical Lab Scientist - Chemistry/Urinalysis

B.S., Minnesota State University Mankato, Mankato, MN

MLS (ASCP), HCMC

[katie.carlson@hcmcd.org](mailto:katie.carlson@hcmcd.org)

**Lynn Poth, MS, MT (ASCP)**

Lab Ed. Program Director – Phlebotomy & Management/Ed

M.S., University of North Dakota, Grand Forks, ND

B.S., University of Texas/El Paso, El Paso, TX

MT (ASCP), William Beaumont Army Medical Center and  
Providence Hospital, El Paso, TX

[lynn.poth@hcmcd.org](mailto:lynn.poth@hcmcd.org)

**James Parkin, MT**

Medical Technologist – Manual Hematology Instructor

Retired – Education only

[james.parkin@hcmcd.org](mailto:james.parkin@hcmcd.org)

## School of Laboratory Science Policies

### Equipment and Resources

#### Library Resources

The laboratory has current references available for students to check out if needed.

The main hospital library, located on the red skyway level, is open to all Medical Center staff and students. Students are encouraged to become familiar with and utilize the facilities.

#### Classroom Resources

Students enrolled in programs within the School of Laboratory Science have access to the following facilities, equipment, and resources as needed for their individual school.

1. HCMC Conference rooms are utilized as space for lectures. Rooms are fully equipped with computers and audiovisual equipment for presentations.
2. Venipuncture practice blocks are available for practice prior to live blood collection.
3. Students utilize all phlebotomy equipment in the Outpatient blood collection areas for live patient draws under the guidance of phlebotomy preceptors.
4. Students utilize the blood collection carts and other inpatient blood collection equipment to gain phlebotomy skills under guidance of phlebotomy preceptors in the inpatient units.
5. MLS Program - The automated analyzers and equipment in our clinical laboratory space along with reagents are available for student practice and use.

#### Dress code

Students represent the laboratory to patients, visitors, and other hospital employees. Our policies state that clothing and shoes must be clean, neat appearing, without excessive wear, appropriate, and safe for the duties performed. Please dress professionally.

1. Students are **NOT** permitted to wear denim jeans (any color), shorts, sweatpants, mini-skirts,
2. skin-tight clothing, exposed shoulder, midriff, or cleavage.

## STUDENT POLICIES

3. Shirts, T-shirts, and sweatshirts with pictures, sayings, and logos are not acceptable.
4. Students are **NOT** permitted to wear any open-toed shoes or sandals.
5. Lab coats will be provided for student safety and protection. Scrubs will not be provided but are acceptable attire with a lab coat worn over them. Ceil blue scrubs are not permitted. Any other color is acceptable as long as entire color sets are not worn. Many areas of the hospital have color-specific scrubs, grape is the color for our phlebotomy staff.
6. Long hair must be tied up or back. This is a safety requirement.
7. Cologne, perfume, scented lotions, or body wash are not to be worn in patient care areas or the laboratory.
8. Only minimal jewelry should be worn for safety and infection control reasons. Dangle earrings must be 1 inch or shorter.
9. Facial piercing must be limited to one piercing with jewelry (not including ears). Students may be required to cover visible tattoos if considered inappropriate.
10. No artificial fingernails are allowed. Natural fingernails must be kept short, clean and healthy; no longer than ¼ inch past the fingertip in order to stay in compliance with hospital Infection Control policies. This policy is enforced to protect Hennepin Healthcare patients.

## School Calendar

The calendar for the 2023/24 school year is tentative and subject to change.

## STUDENT POLICIES

### June 2023

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

### July 2023

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

### August 2023

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
	28					

### September 2023

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

### October 2023

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



#### Medical Laboratory Science

6/22-7/7 Summer break – No class for MLS

#### Phlebotomy Technician

6/12 Summer 2023 Phlebotomy class – First day of class

#### Medical Laboratory Science

6/22-7/7 Summer break – No class for MLS

7/4 4<sup>th</sup> of July holiday

#### Phlebotomy Technician

7/4 4<sup>th</sup> of July holiday

7/3-4 4<sup>th</sup> of July holiday break – No Class for Phlebotomy

7/5-7 Class in session for Phlebotomy

7/15 Prospective Phlebotomy student application deadline for **Fall 2023** start

#### Medical Laboratory Science

8/28 Fall 2023 MLS class – First day of Core 1

#### Histology

8/28 First day of Internship

#### Phlebotomy Technician

#### Medical Laboratory Science

9/4 Labor Day – No Class for MLS

#### Phlebotomy Technician

9/1 Summer 2023 Phlebotomy class Graduation Day – Final day of class

9/18 Fall 2023 Phlebotomy class – First day of class

#### Medical Laboratory Science

10/1 Prospective MLS student tour deadline

10/6 Spring 2023 MLS class Graduation Day – Final day of class

10/15 Round 1 Prospective MLS student application deadline for Fall 2024 and Spring 2025

#### Phlebotomy Technician

## STUDENT POLICIES

### November 2023

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

### December 2023

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

### January 2024

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

### February 2024

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

### March 2024

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						



#### Medical Laboratory Science

11/23 Thanksgiving Day  
11/23-25 Thanksgiving break – No Class for MLS

#### Histology

11/23-24 Thanksgiving break – No class for Histo

#### Phlebotomy Technician

11/15 Prospective Phlebotomy student application deadline for Winter 2024 start

11/23-24 Thanksgiving break – No class for Phleb

#### Medical Laboratory Science

12/20 Fall 2023 MLS class – Final day of Core 1  
12/21-1/5 Winter break – No Class for MLS  
12/25 Christmas Day

#### Histology

12/15 or 22 Final day of Histology Internship

#### Phlebotomy Technician

12/8 Fall 2023 Phlebotomy class Graduation Day – Final day of class

#### Medical Laboratory Science

1/1 New Year's Day  
1/8 Fall 2023 MLS class – First day of Core 2  
1/8 Spring 2024 MLS class – First day of Core 1

1/15 Martin Luther King Jr Day–Class in session for MLS

#### Phlebotomy Technician

1/15 Martin Luther King Jr Day – No Class for Phleb

1/16 Winter 2024 Phlebotomy class – First day of class

#### Medical Laboratory Science

2/19 Presidents' Day – Class in session for MLS

#### Phlebotomy Technician

2/19 Presidents' Day - No Class for Phlebotomy

#### Medical Laboratory Science

3/15 Round 2 Prospective MLS student applications due for Spring 2025 class (*if available*)

#### Phlebotomy Technician

## STUDENT POLICIES

### April 2024

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

### May 2024

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

### June 2024

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

### July 2024

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

### August 2024

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



#### Medical Laboratory Science

##### Phlebotomy Technician

4/5 **Winter 2024 Phlebotomy class Graduation Day**  
– Final day of class

4/15 Summer 2024 Phlebotomy class – Prospective student application deadline

#### Medical Laboratory Science

5/10 Spring 2024 MLS class – Final day of Core 1

5/13 Spring 2024 MLS class – First day of Core 2

5/24 **Fall 2023 MLS class Graduation Day** – Final day of Core 2

5/27 Memorial Day

5/27-28 Memorial Day holiday break–No Class for MLS

**Phlebotomy Technician**

#### Medical Laboratory Science

6/20-7/5 Summer break – No class for MLS

6/19 – Juneteenth – *Class in session*

##### Phlebotomy Technician

6/10 Summer 2024 Phlebotomy class – First day of class

6/19 – Juneteenth – *Class in session*

#### Medical Laboratory Science

6/20-7/5 Summer break – No class for MLS

7/4 4<sup>th</sup> of July holiday

##### Phlebotomy Technician

7/4 4<sup>th</sup> of July holiday

7/4-5 4<sup>th</sup> of July holiday break – No Class for Phlebotomy

7/1-3 *Class in session for Phlebotomy*

7/15 Prospective Phlebotomy student application deadline for **Fall 2024** start

#### Medical Laboratory Science

8/26 Fall 2024 MLS class – First day of Core 1

##### Phlebotomy Technician

8/30 **Summer 2024 Phlebotomy class Graduation Day** – Final day of class

## STUDENT POLICIES

### September 2024

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

### October 2024

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



#### Medical Laboratory Science

9/2 Labor Day – No Class for MLS

#### Phlebotomy Technician

9/16 **Fall 2024** Phlebotomy class – First day of class

#### Medical Laboratory Science

10/1 Prospective MLS student tour deadline

10/4 **Spring 2024 MLS class Graduation Day** – Final day of class

10/15 Round 1 Prospective MLS student application deadline for Fall 2025 and Spring 2026

#### Phlebotomy Technician

## Grades and Standards of Performance

The Hennepin Healthcare School of Laboratory Science programs utilizes the following percentages and correlating letter grades. A grade of C or above is considered satisfactory and must be maintained.

Percent grade	Letter grade	Description
90%-100%	A	Excellent
80%-89%	B	Good
70%-79%	C	Satisfactory
60%-69%	D	Unsatisfactory
<60%	F	Unsatisfactory

Final grades are based on the following:

- Technical ability and performance (practical exams and evaluations)
- Behavioral evaluations
- Exams and quizzes on formal lecture material and/or bench objectives

Students in all programs are required to **maintain a minimum cumulative grade a C** in both the lecture and clinical practice portions of their courses. Satisfactory scores (as defined by each section or evaluation form) must also be earned on certain key exams, practical exams, and/or Behavioral/Technical evaluations.

Students completing pre-requisite courses for the MLS program are required to earn a C or better in each of the pre-requisites in order to enter the program.

## Student Records

The Program Director will meet one on one with students regularly to discuss progress and provide feedback as interns move through the program.

Updated grades are provided to students regularly in each of their areas of study. Some areas grades are continuously available to students in real time through a Learning Management System. Midterm transcripts are provided to MLS students and their home universities as documentation of progress.



Upon graduation from their program students are provided with an official transcript of their final grades with credits earned (if applicable) and a certificate of completion. Grades and credits earned by students in the MLS program are provided to the Program Director at the student's home university. The home university will post the grades reported by HCMC to the student's official university transcripts.

Student files containing admission materials, evaluation documents, pertinent counseling and advising records, certificates earned and attendance records, as well as grades and credits earned (if applicable) are maintained while the student is in the program and for 2 year following their graduation.

Documentation of the student's legal name and address at the time of attendance, the schools name and address, certificate of completion with dates of admission and completion, transcripts showing the program and/or course titles, grades, cumulative GPA, and credits earned (if applicable), and pertinent counseling/advising notes will be kept on file indefinitely at the school.

## **Program Specific Information**

The Hennepin Healthcare School of Laboratory Science is home to two laboratory programs.

### **The Phlebotomy Technician Program**

The Phlebotomy Technician Program is a twelve-week clinical experience in medical terminology, quality assurance and legal concerns, safety and infection control, specimen processing, point-of-care testing, anatomy and physiology of the circulatory system, and venipuncture, arterial puncture, and skin puncture techniques. Students are also introduced to the healthcare environment, other healthcare professionals, and the use of electronic medical records. Lectures, laboratory demonstrations, and technical evaluation are utilized for the learning process. The academic portion of the program exceeds the 40 hours required to register for the ASCP Board of Certification exam.

After initial experience with artificial phlebotomy practice blocks, students receive individualized instruction as they learn and work with clinical instructors. The first week is focused on an overall orientation to Hennepin Healthcare and the phlebotomy career. It includes hands on learning of the phlebotomy process and introduction to live phlebotomy with the entire class together.

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

The class is split into 2 groups for the remaining 11 weeks. One group will spend the next 4 weeks in the community clinics practicing outpatient blood collection with professional phlebotomists. The other group will be going out with the inpatient phlebotomy teams to practice blood collection in different patient care settings. Those settings include places like the intensive care units, burn unit, pediatrics, and newborn units in a very busy Level I Trauma Center.

The two student groups will switch places during week 6-9 and experience the other blood collection areas. The final 3 weeks are a flex week where students have the opportunity to select the blood collection area they would like more practice in to finish the experience.

The clinical experience at Hennepin Healthcare exceeds the required 100 hours and the required 100 successful unaided blood collections needed to register for the ASCP Board of Certification exam in phlebotomy, while focusing on patient interactions and an excellent outcome and experience for our patients and their families.

This course is currently offered twice each year, once beginning in January and once beginning in June with students selected through a competitive application process.

Upon completion of the program, graduates earn the HCMC Phlebotomy Technician certificate. This is not contingent on passing a certification examination.

Students are then eligible to take the national certification examination of the American Society for Clinical Pathology (ASCP) Board of Certification. Our published pass rate over the past 3 years is at 80% for the 12 months following graduation. COVID related disruptions resulted in a delay in testing during the pandemic and we are pleased to report that within 16 months of graduation, 100% of our phlebotomy graduates have passed the exam.

### **Applying to the Phlebotomy Technician Program**

Applications for one of the 2 classes held each year are due approximately two months prior to the first day of class. For the June class, applications are due on **April 15**. For the January class, applications are due on **November 15**.

Prospective students should review the job expectations for the Medical Laboratory Field and the qualifications for the HCMC Phlebotomy Technician program prior to beginning the application process. A signed statement indicating understanding of these requirements is required as part of the application process.

## EXPECTATIONS FOR THE PHLEBOTOMY TECHNICIAN JOB FIELD

Prospective students must be able to satisfy the Technical Standards and Essential for the Phlebotomy Technician program and job field at HCMC based on existing skills and abilities, or through the use of corrective devices. The Technical Standards are listed below.

### Phlebotomy Technical Standards

Technical Standards represent the essential non-academic requirements of the program. All applicants would be expected to be able to do the following upon completion of the Program requirements:

1. Perform phlebotomy skills.
2. Perform specified laboratory procedures that require manual dexterity.
3. Prepare blood films for clinical interpretation.
4. Read, understand, and perform tasks from written procedures.
5. Distinguish color changes on indicators.
6. Follow Standard Precautions at all times to decrease risk to the individual.
7. Follow Safety Guidelines to protect the individual.
8. Follow regulations in regard to patient confidentiality.
9. Communicate with patients.

### Phlebotomy Essential Functions

The positions available in the field of medical laboratory science may require all combinations of the following physical, sensory, and environmental conditions:

#### **RARELY: (Less than once or twice per week)**

Exposure to radiation (Dependent upon type of procedures)  
Toxic/caustic chemical exposure  
Fumes/Odors/Noxious smells from various types of specimens

#### **OCCASIONALLY: (0-2.5 hours per day)**

Carrying less than ten pounds	
Climbing stairs	
Stooping/bending	Far Vision (>20+ feet)
Reaching below shoulder	Simple grasping

#### **FREQUENTLY: (Total of 2.5-5.5 hours per day)**

	Hand-arm controls
Walking	Static neck positions
Standing	Hearing oral information over
Sitting	phone

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

	Fine motor skills
Carrying negligible amounts of weight	Writing
Talking in person or by telephone	Fine manipulation
Pushing and pulling	Keying/Typing/computer screen navigation

### **CONSTANTLY: (>5.5 hours per day)**

#### Blood Borne Pathogen Exposure

Standard Precautions are followed to decrease risk and protect the employee.

#### Seeing

1. Near Vision (Reading 20 inches or less)
2. Depth Perception
3. Color Vision

**Phlebotomy Work Situations** The following work situation factors may be present:

1. Hygiene/appearance demands
2. Possible shift work (dependent upon position)
3. Customer/public contact
4. Reading
5. Writing
6. Mathematics
7. Attentiveness duration - maintaining alertness
8. Attentiveness intensity - concentration
9. Short term memory
10. Long term memory
11. Working under specific instructions (No independent action or judgement)
12. Ability to problem solve
13. Transferring knowledge to unique situations
14. Performing multiple tasks concurrently
15. Attaining precise set limits, tolerance, and standards (precision)
16. Working under time constraints
17. Perceive pertinent detail in objects, make visual comparisons and discriminations

## APPLICANT QUALIFICATIONS

<b>Phlebotomy General Qualifications</b>	Prospective students must be 18 years of age or older.
	High school graduation or the equivalent is required in order to apply to the program. College courses and related healthcare experience is not required, but is preferred. Official

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

transcripts sent directly to the Program Director from the College (or High School if no college work has been completed) are required.

No transfer credits are accepted. No credit will be granted for any previous training or related instruction. The entire course must be completed with passing scores to receive a certificate of completion.

Prospective students must be fluent in English in both verbal and written form.

**Phlebotomy GPA Requirements** A cumulative grade point average of 2.5 or better on a 4.0 scale on the most recent transcript is preferred, but not required. Students with a GPA at or above 2.5 will be considered first for admission to the program.

### APPLICATION AND SELECTION PROCESS

The application and selection process occurs in several phases that begin with submission of a **fully completed** Phlebotomy Technician Program application form. The ability to follow detailed directions correctly and completely is an essential characteristic when determining suitability for the phlebotomy profession. A complete application is a requirement for admission and students with incomplete applications will not be considered for an interview.

Application forms are available from the HCMC Program Director, or by download directly from the Hennepin Healthcare website at [www.hennepinhealthcare.org/labeducation](http://www.hennepinhealthcare.org/labeducation).

**Phlebotomy Application phase Documents** – The following documents should be submitted to the HCMC Program Director by the deadline for the desired term to be considered for admission to the HCMC Phlebotomy Technician Program. The deadlines are April 15 for the term starting in June, and November 15 for the term starting in January.

1. A **complete application form**, including signature form and biographical sketch. The biographical sketch should include a statement of interest in the program.
2. **Official transcripts** must be sent directly to the HCMC Program Director from **all colleges previously attended**. If no colleges have been attended, official High School transcripts or GED transcripts should be sent directly to the Program Director from the school or institution.

International students who have no college or high school transcripts from the United States may submit documentation of high school graduation and/or national secondary examinations from other countries.

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

If documentation of previous education is not available, TABE or ACUPLACER scores may be accepted as an alternative. HCMC does not administer these exams, but can assist prospective students in locating a site for testing.

Academic Area	TABE (Test of Adult Basic Education) Minimum Score Requirements	Acuplacer Minimum Score Requirements
Reading	10 <sup>th</sup> grade or higher	78+
Math/Arithmetic	10 <sup>th</sup> grade or higher	31+

Students with a GPA of 2.5 or higher on college or high school transcripts receive preference for admission. Students who meet minimum score requirements on TABE or Acuplacer testing will also receive preference for admission.

3. **Two Letter of Recommendation forms** from people familiar with your work or academic performance sent directly to the Program Director in a sealed envelope. Recommendations can be obtained from previous instructors or supervisors from work or volunteer settings.

### **Phlebotomy Interview Phase**

After the application deadline, applicants who meet the criteria established above will be asked to schedule an interview. Interviews will be conducted over approximately 3 weeks following the application deadline at HCMC.

### **Phlebotomy Selection Phase**

Applicants are selected based on their Grade Point Average (or test scores), previous experience in health care and autobiography, letters of recommendation, and the interview. The weight that each of these items has in the selection process is determined based on a rating form developed by the HCMC Education Committee.

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

Weight value by category	
Grade point average (or test scores)	10%
Previous experience in healthcare and autobiography	10%
Letters of recommendation	30%
Interview	50%

Prospective Students will be notified of the outcome of the application process within 2 weeks after the interviews are completed. If a seat is offered to a student, acceptance is required in writing in order to hold the seat until classes begin.

### FINAL PROGRAM ENTRY REQUIREMENTS

Prior to entry in the Phlebotomy Technician Program, additional requirements must be completed to satisfy state and hospital requirements and obtain clearance for direct patient contact.

**Phlebotomy - MN Department of Human Services Background Study** Students must complete a Minnesota Department of Human Services background study (as required by Minnesota state law) and receive clearance for direct patient contact. Instructions on completion of the background study will be provided to accepted students. It must be completed and clearance received prior to the first day of class.

**Phlebotomy Entrance Health Assessment** Prior to entering the program, the Program Director and, if necessary, HCMC's Employee Occupational Health and Wellness (EOHW) will review the student's health insurance status and vaccination records. No exit physical is required following completion of the program.

Students are required provide documentation of the following:

1. **Color Blindness:**  
Color blindness testing will be performed during the first week of class.
2. **Medical Insurance:**

Hennepin healthcare does not provide individual hospitalization or medical insurance. The student must be covered for medical insurance and show policy numbers, company, and effective dates.

3. **Required Mantoux:**

Documentation of a Tspot/quantiferon gold test within one year or Mantoux TB skin test and follow-up within 6 months of starting the program.

4. **Required Vaccinations:**

Documentation of 2 Mumps, 2 Rubella, 2 Rubeola, and 2 Varicella (chickenpox) vaccinations and/or titer as indicated.

5. **Recommended Vaccination:**

Hepatitis B vaccination is highly recommended. It should be started at least 4 weeks prior to starting at HCMC.

6. **Vaccination against Influenza**

Flu shots are available for students. If a student does not receive the flu shot, they will be required to wear a mask, per hospital policy, during flu season.

7. **Vaccination against COVID-19**

COVID-19 vaccination is required for all employees, volunteers, and students engaged in learning at Hennepin Healthcare.

If the student's records are not complete, any lab tests, X-rays, or vaccinations will be billed to the student's insurance.

***Please note:*** incomplete records may result in not being allowed to start the training until they are complete.

## **Phlebotomy Technician Program Tuition Policies**

The following policies are in place to provide information about the student's rights and responsibilities with regard to tuition for the Hennepin Healthcare Phlebotomy Technician program.



## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

### PHLEBOTOMY TECHNICIAN TUITION AND FEES

Expenses include tuition of \$1,600.00 and the purchase of a textbook for approximately \$80.00. Students have the option of purchasing a Metro Transit Student pass through the school for approximately \$165.00 which provides unlimited use of public transportation while enrolled in the program. Payments can be made in one lump sum or utilizing the payment schedule below.

Payment is due On or before:	Item	Amount
First day of class	Tuition	\$600.00
	Textbook	~\$ 80.00
	Optional - Metro Transit Student Pass	~\$165.00
Friday of week 4	Tuition	\$500.00
Friday of week 8	Tuition	\$500.00

Failure to pay amounts due will be cause for termination of your program and forfeiture of all amounts previously paid.

**Phlebotomy Program Financial Assistance** This program is not eligible for Federal Student Aid through the US Department of Education. Scholarships or other outside funding sources can be used toward payment of tuition. The Hennepin Healthcare Phlebotomy Technician program is included in the MN Department of Employment and Economic Development list of eligible training providers and is an eligible site for WIOA participants.

**Phlebotomy Program Refund Policy/ Buyers Right To Cancel** If your application is rejected, you will receive a full refund of all tuition, fees, and other charges. You will be entitled to a full refund of tuition, fees, and other charges if you give notice that you are canceling your enrollment within 5 days of being accepted into the school or program.

This five-day refund policy applies regardless of when the program starts. If you give notice more than 5 days after being accepted into the program, but before the start of the program (or first lesson for an online distance education program), you will receive a refund of all tuition, fees, and other charges minus 15%, up to \$50, of the total cost of the program.

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

If you withdraw after the start of your program and it has been more than 5 days after you were accepted into your program, you will receive a pro-rated refund of the entire cost of your program based on your last day of attendance. You will be provided a prorated tuition, fees, and other charges refund minus your initial application fees, up to \$50, and minus the less or 25% of the total tuition or \$100. Proration is based on whether your program is term-based or clock hours and how much of the program you have completed.

If your program is term-based, the completion rate is the number of calendar days from the first date of the program through your last documented date of attendance divided by the length of the program. The completion rate is calculated to the second decimal point (.XX).

If your program is clock-hour based, the completion rate is the number of clock hours you actually attended divided by the number of clock hours in the program. The completion rate is calculated to the second decimal point (.XX)

If you withdraw from your program after 75.00% of the program has completed, you are not entitled to a refund of tuition, fees, and other charges.

You will receive written notice acknowledging your withdraw request within 10 business days after receipt of the notice and you will receive a refund of any tuition, fees, and other charges within 30 business days of receipt of your withdrawal. Any mailed notice is effective of the date of the postmark if sent by mail or the day it has been hand delivered to the school. Notice to withdraw may also be given by email or verbally, including a voicemail, to Lynn Poth, Program Director (defined by school's Student Right to Cancel policy).

If you do not withdraw in writing or contact the school about your absence, and you have not attended your program or contact the school about your absence for 14 consecutive days, you will be considered to have withdrawn from the school as of your last date of attendance. Your school is responsible for sending you a written notice of cancellation if you are withdrawn for failing to attend to your last known address. The confirmation from the school must state that the school has withdrawn you from enrollment, and if this action was not the student's intent, the student must contact the school.

### **Transfer Credit/**

### **Credit for Prior Experience Policy**

Transfer credits from previous phlebotomy training programs or previous phlebotomy work experience are not accepted by the Hennepin Healthcare Phlebotomy Technician program.

All students must complete the entire course and earn passing scores/evaluations in order to receive the HCMC certificate of completion.

The certificate awarded for successful completion of the Hennepin Healthcare Phlebotomy program is not intended to be transferred to another institution of higher learning as transfer credit. The decision to award transfer credit or to not award transfer credit at another institution for work done in the Phlebotomy Program at HCMC is at the sole discretion of the other institution.

## **Phlebotomy Technician Program Goals and Competencies**

### **PHLEBOTOMY TECHNICIAN GOALS**

The Hennepin Healthcare Phlebotomy Technician Program will:

1. Provide high-quality instruction that will produce a graduate of the program who is competent in the theory and practice of phlebotomy.
2. Provide the environment necessary to enable each student to develop and demonstrate professionalism and concern for the patient in the daily practice of phlebotomy.
3. Provide a curriculum that will enable each student to:
  - A. Acquire and develop competence in the technical skills and theory necessary for the performance of phlebotomy
  - B. Participate in clinical experiences that will fulfill requirements in the following areas:
    - 1) Phlebotomy
    - 2) Specimen collection and processing
    - 3) Point-of-Care testing
  - C. Register for a national board of certification examination.
  - D. Function effectively as a responsible phlebotomist upon completion of the program.
4. Provide instructors who are well qualified and motivated.
5. Develop and use valid testing and evaluation mechanisms.
6. Employ a variety of instructional methods and materials.

### **PHLEBOTOMY TECHNICIAN COMPETENCIES**

Students graduating from the Hennepin Healthcare Phlebotomy program will be able to achieve the following competencies.

1. Demonstrate knowledge of the structure of healthcare systems and their regulatory agencies.
2. Demonstrate knowledge of Medical Terminology.

## **PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION**

3. Demonstrate understanding of the circulatory and nervous systems as they relate to specimen collection.
4. Demonstrate knowledge of basic disease states, their associated body systems, and their relationship to major areas of the clinical laboratory.
5. Demonstrate understanding of infection control and safety.
6. Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care.
7. Demonstrate understanding of and the ability to use basic blood collection equipment.
8. Demonstrate understanding of blood collection tube additives and their impact on specimen integrity and testing in the major areas of the laboratory.
9. Demonstrate the ability to follow standard operating procedures in blood collection.
10. Demonstrate understanding of requisitioning, specimen transport, and specimen processing.
11. Demonstrate understanding of quality assurance and quality control.
12. Demonstrate the ability to communicate effectively and appropriately in a healthcare setting.

## **PHLEBOTOMY TECHNICIAN PROGRAM SCHEDULE**

The Phlebotomy Technician program incorporates 12 weeks of course-work and training. Students will be scheduled off during major holidays if those holidays fall within the class period. See the school calendar for anticipated days off during the 2022/23 school year.

The program combines classroom instruction with skills practice on artificial blood collection simulation devices and blood collection from live patients under the close supervision of professional phlebotomy staff.

Class is generally held Monday thru Friday for 6 ½ - 8 ½ hours each day throughout the program. The hours of the program vary depending on scheduled activities, but are set to occur during hospital day shift hours. It is essential that students have the flexibility to accommodate fluctuations in hours including early morning start times. Students are expected to be present and on time for each class day.

Classroom time focuses on one or more of the program competencies each week. These are noted in the Schedule of Activities. Competencies are listed one or more times as a lecture focus within the Schedule of Activities, but are practiced and assessed throughout the program in both the classroom and hands on practice settings.

## Phlebotomy Schedule of Activities

Phlebotomy Program Anticipated Schedule of Activities				
<b>ABOUT ROTATIONS:</b> *Students will rotate between community clinic and hospital inpatient blood collection every 4 weeks after orientation *Students in the hospital inpatient setting will generally start at 6am, though earlier start times may be offered to provide access to specific floors.				
Weeks	Anticipated attendance hours Monday thru Friday *Subject to change due to staffing or other considerations	Expected Blood Collection Activities	Expected Classroom time	Classroom Focus Competencies
1	7:00am-3:30 pm	Classroom blood collection and Community Clinic Observations	Classroom – 34 hrs	1, 5, 7, 8, and 12
<b>Competency 1</b> - Demonstrate knowledge of the structure of healthcare systems and their regulatory agencies. <b>Competency 5</b> - Demonstrate understanding of infection control and safety. <b>Competency 7</b> - Demonstrate understanding of and the ability to use basic blood collection equipment. <b>Competency 8</b> - Demonstrate understanding of blood collection tube additives and their impact on specimen integrity and testing in the major areas of the laboratory. <b>Competency 12</b> - Demonstrate the ability to communicate effectively and appropriately in a healthcare setting.				
2	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 5.5 hrs	6, 7, and 9
<b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 7</b> - Demonstrate understanding of and the ability to use basic blood collection equipment. <b>Competency 9</b> - Demonstrate the ability to follow standard operating procedures in blood collection.				
3	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 4 hrs	2, 3, and 4
<b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 7</b> - Demonstrate understanding of and the ability to use basic blood collection equipment. <b>Competency 9</b> - Demonstrate the ability to follow standard operating procedures in blood collection.				
4	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital	Classroom – 6.5 hrs	6, 9, and 10

# PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

		Inpatient blood collection		
<b>Competency 2</b> - Demonstrate knowledge of Medical Terminology. <b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 9</b> - Demonstrate the ability to follow standard operating procedures in blood collection. <b>Competency 10</b> - Demonstrate understanding of requisitioning, specimen transport, and specimen processing.				
5	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 6.5 hrs	6,10, and 11
<b>Competency 3</b> - Demonstrate understanding of the circulatory and nervous systems as they relate to specimen collection. <b>Competency 4</b> - Demonstrate knowledge of basic disease states, their associated body systems, and their relationship to major areas of the clinical laboratory.				
6	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 5.5 hrs	6, 10, and 11
<b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 10</b> - Demonstrate understanding of requisitioning, specimen transport, and specimen processing. <b>Competency 11</b> - Demonstrate understanding of quality assurance and quality control				
7	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom - 4 hrs	
<b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 10</b> - Demonstrate understanding of requisitioning, specimen transport, and specimen processing.				
8	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 5.5 hrs	
<b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 10</b> - Demonstrate understanding of requisitioning, specimen transport, and specimen processing <b>Competency 11</b> - Demonstrate understanding of quality assurance and quality control				
9	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 2.5 hrs	
<b>Competency 6</b> - Demonstrate understanding of the importance of specimen collection and specimen integrity to the delivery of patient care. <b>Competency 10</b> - Demonstrate understanding of requisitioning, specimen transport, and specimen processing				
10	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 0 hrs	

## PHLEBOTOMY TECHNICIAN PROGRAM INFORMATION

11	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 0 hrs	
12 Mon thru Wed	9:00am-3:30 pm or 6:00-2:30	Community Clinic or Hospital Inpatient blood collection	Classroom – 1 hr	12
<b>Thursday &amp; Friday are Presentation and Graduation days – No Inpatient Blood Collections</b>				
<b>Competency 12 - Demonstrate the ability to communicate effectively and appropriately in a healthcare setting.</b>				

Additional training time outside of regularly scheduled hours is generally not available and must be approved in advance by the Program Director. Evening enrichment training may be arranged to fill specific curriculum needs, but will be arranged to fit student's individual schedules. There are no regularly scheduled student weekend hours.

## **The Medical Laboratory Science Program**

The Medical Laboratory Science Program is a nine-month clinical internship with intensive study in chemistry (including toxicology and instrumentation), coagulation, hematology, immunohematology (blood bank), immunology, microbiology (including parasitology, mycology, mycobacteriology, and virology), urinalysis, management, and education. Each area includes practical laboratory experiences, lectures and/or workshops, self-instruction learning modules, patient case studies, and exams.

Students receive individualized instruction as they learn and work with teaching technologists in the laboratory. Students perform tests on patient blood and body fluid specimens and, under supervision, report results.

Students enter this program either in August (fall start) or in January (spring start) of each year with students selected through a competitive application process. Students who begin the program in August will graduate in late May, students who begin the program in January will graduate in mid-October.

Upon completion of the program, graduates receive a certificate that is not contingent on passing a certification examination. Graduates are then eligible to take the national certification examination of the American Society of Clinical Pathology (ASCP) Board of Certification. The pass rate for this exam over the last three years has been 100%.

### **Applying to the MLS Program**

Application deadlines for fall and spring starts of each year occur on October 15 of the previous year. For example, students who wish to begin in August of 2023 or January of 2024 should submit their application and prepare to interview in the summer and fall of 2022. Applications may be accepted in March for students wishing to enter the program in January of the following year. If an additional application period is opened, university Program Directors will be notified. Students can check on the status of the optional March application period by checking with the HCMC MLS Program Director or with their home Universities MLS Program Director.

Prospective students should review the job expectations for the Medical Laboratory Field and the qualifications for the HCMC MLS program prior to beginning the application process. They will be required to sign a statement that they understand the technical standards and essential functions as part of their application.

Additionally, a tour is required prior to applying to the program so that students can see the facilities first-hand and have the chance to ask any questions they may have. Tours must have occurred



within 2 years of the application date and be completed by October 1 for fall applications. Spring applicants (if spring applications are accepted) can complete tours up to the application deadline.

Virtual tours have been made available during the ongoing pandemic to give prospective students a view of what to expect in our labs. In person tours are always encouraged when they are available. A large group tour has been held in the past during the late spring of most years which allows students the opportunity to interact with current students and faculty as well as tour the facility. Smaller, more individualized tours may be available over the summer. If either the large group tour or small in person tours will be made available in future, affiliated university Program Directors will be made aware and times can be scheduled by contacting the HCMC MLS Program Director.

### EXPECTATIONS FOR THE MEDICAL LABORATORY SCIENCE JOB FIELD

Prospective students must be able to satisfy the **Technical Standards for the Medical Laboratory Science program** at HCMC based on existing skills and abilities, or through the use of corrective devices. The Technical Standards are listed below.

#### MLS Technical Standards

Technical Standards represent the essential non-academic requirements of the program. All applicants would be expected to be able to do the following upon completion of the Program requirements:

1. Utilize a microscope to identify cells, structures, and organisms.
2. Perform phlebotomy skills.
3. Perform various pipetting techniques using:
  - a. Serological pipets
  - b. Volumetric pipets
  - c. Micropipettors
  - d. Re-pipettors
4. Operate laboratory instruments and perform basic quality control and preventative maintenance on laboratory instruments.
5. Perform specified laboratory procedures that require manual dexterity.
6. Prepare blood films for clinical interpretation.
7. Apply basic mathematical calculations to practical lab situations.
8. Read, understand, and perform laboratory testing from written procedures.
9. Distinguish color changes in cells and testing pads.
10. Follow Standard Precautions at all times to decrease risk to the individual.
11. Follow Safety Guidelines to protect the individual.
12. Communicate with patients.

**MLS Essential Functions**

The positions available in the field of medical laboratory science may require all combinations of the following physical, sensory, and environmental conditions:

**RARELY: (Less than once or twice per week)**

Exposure to radiation (Dependent upon type of procedures)  
Toxic/caustic chemical exposure  
Fumes/Odors/Noxious smells from various types of specimens

**OCCASIONALLY: (0-2.5 hours per day)**

Walking	Reaching below shoulder
Carrying less than ten pounds	Far Vision (>20+ feet)
Climbing stairs	Simple grasping
Stooping/bending	Pushing/Pulling

**FREQUENTLY: (Total of 2.5-5.5 hours per day)**

Standing	Hearing oral information over phone
Sitting	Carrying negligible amounts of weight
Hand-arm controls	Fine manipulation
Static neck positions	Other fine motor skills
Talking to co-workers in person or by telephone	Writing Keying/Typing

**CONSTANTLY: (>5.5 hours per day)**

Blood Borne Pathogen Exposure  
Standard Precautions are followed to decrease risk and protect the employee.  
Seeing

4. Near Vision (Reading 20 inches or less)
5. Depth Perception
6. Color Vision

**MLS Work Situations**

The following work situation factors may be present:

1. Hygiene/appearance demands
2. Possible shift work (dependent upon position)

3. Customer/public contact
4. Reading
5. Writing
6. Mathematics
7. Weighing and/or measuring
8. Attentiveness duration - maintaining alertness
9. Attentiveness intensity - concentration
10. Short term memory
11. Long term memory
12. Working under specific instructions (No independent action or judgement)
13. Ability to problem solve
14. Transferring knowledge to unique situations
15. Directing, controlling, or planning activities of others
16. Evaluating performance of others
17. Performing multiple tasks concurrently
18. Showing capacity for self-expression
19. Working alone or apart, in physical isolation, from others
20. Attaining precise set limits, tolerance, and standards (precision)
21. Working under time constraints
22. Perceive pertinent detail in objects, make visual comparisons and discriminations and see slight differences in shapes and shadings of figures.
23. Observe differences in copy, proofread works and numbers, and avoid perceptual errors in arithmetic computation

## APPLICANT QUALIFICATIONS

### **MLS General Qualifications**

Prospective students must be at least 18 years of age.

Students must be enrolled in the MLS program and have completed at least 1 semester at one of the following 5 affiliated universities:

1. St Cloud State University - St Cloud, MN
2. Minnesota State University - Mankato, MN
3. Winona State University - Winona, MN
4. University of Wisconsin - La Crosse, WI
5. Michigan Technological University - Houghton, MI

**MLS GPA Requirements**

Students must have both a cumulative GPA and science GPA of 2.6 or higher to be eligible for the program. Calculations to determine GPA will be done using **all** grades earned, including grades for courses that were repeated for a higher grade during a later semester.

**MLS Pre-requisites**

To qualify for HCMC's Medical Laboratory Science Program, the following classes or their equivalents must be completed prior to entry into the program. It is expected that

1. **Biological Sciences:** A minimum of 16-semester credits is required with a minimum of 3 credits in each required course. The required courses are immunology, microbiology or medical/pathogenic micro with a lab, anatomy/ physiology, genetics/molecular biology. Recommended courses include an introduction to medical laboratory science, mycology, parasitology, and virology.
2. **Chemistry:** A minimum of 16-semester credits is required. The required courses are general chemistry and organic or biochemistry. Recommended courses include analytical chemistry and instrumentation.
3. **Mathematics:** Statistics is required, either as a separate course or included in a relevant course (e.g. biostatistics or analytical chemistry). Calculus is highly recommended.
4. **Required pre-clinical courses:** Hematology with lab experience, immunohematology/Blood Bank with lab experience, and urinalysis with a lab experience. Introduction to clinical chemistry is highly recommended
5. **Suggested electives:** physics, computer science, education courses, business administration, and medical terminology.

**MLS Additional Requirements**

In addition to the basic qualifications listed above, applications will be evaluated based on the following additional requirements.

1. Students must have completed a minimum of 1 semester at the affiliated university prior to submitting an application.
2. Student records should demonstrate the student's ability to be successful in the internship setting. Patterns of past performance such as excessive withdrawals or repeating of courses during the student's college career will be considered in the decision to advance students to the interview phase.

3. Sufficient coursework must be completed prior to application to demonstrate that the remainder of the coursework can successfully be completed prior to entry into the program. A general guideline is that approximately 32 semester credits or less should be in progress or planned for the final year before entering the HCMC internship.

## APPLICATION AND SELECTION PROCESS

The application and selection process occurs in several phases that begin with a **fully completed** online application to the MLS Program using Clinician Nexus. The ability to follow detailed directions correctly and completely is an essential characteristic when determining suitability for the laboratory science profession. A complete application is a requirement for admission and students with incomplete applications will not be considered for an interview.

The Clinician Nexus application is completed in 3 steps.

1. **Create a free account** on Clinician Nexus [app.cliniciannexus.com/join](http://app.cliniciannexus.com/join)
2. **Create a student profile**
  - a. Profile **MUST INCLUDE** “**Medical Laboratory Scientist**” as DISCIPLINE in order to allow you to apply
  - b. For help creating a profile <https://intercom.help/cliniciannexus-c1e865f2cc5d/en/articles/5407883-setting-up-your-student-account>
3. Once the student profile is created, complete the application using this link <https://app.cliniciannexus.com/search/rotations/44257>
  - a. Complete each of the APPLICATION steps. Do NOT proceed to the ONBOARDING steps at this time as the onboarding process begins only after acceptance to the program.

Information can be found on the Hennepin Healthcare MLS Program website at [www.hennepinhealthcare.org/labeducation](http://www.hennepinhealthcare.org/labeducation). Contact Lynn Poth, the MLS Program Director with any questions about the process.

### MLS Application phase

The following must be completed and/or submitted by **October 15** for Fall applications and by **March 15** for spring applications (*if spring applications are accepted*) to be considered for admission to the HCMC Medical Laboratory Science Program:

1. A completed online Clinician Nexus MLS Program application.

2. **Official transcripts** must be sent directly to the HCMC program director from **all** universities and/or colleges attended and marked as completed in the Clinician Nexus.

This includes not only the university students are currently enrolled in, but also any other colleges that were previously attended.

3. **Two Letter of Recommendation forms** from people familiar with your academic work. The letter of recommendation forms can be printed off from the Clinician Nexus application and should be marked as completed once they have been distributed.

One recommendation should be from a science professor and the second from affiliated university's MLS program director. There is a separate recommendation form for each of these individuals.

4. **HCMC tour – Required by October 1** for fall applications or by **March 15** for spring applications (*if spring applications are accepted*): Tours are required as part of the application process. No tours will be scheduled after October 1 for the fall application period. Student tours must be completed within 2 years of applying. Please contact the Program Director for scheduling.

**MLS Interview phase**

After **October 15** or **March 15**, students with completed applications who meet the criteria established above will be asked to schedule an interview. Interviews will be conducted within 1 month of the application date at HCMC in the clinical laboratory.

**MLS Selection phase**

Applicants are selected based on their cumulative and science GPA's, previous experience in health care and autobiography, letters of recommendation, and the interview. The weight that each of these items has in the selection process is determined based on a rating form developed by the HCMC Education Committee.

Weight value by category	
Cumulative GPA	5%
Science GPA	5%
Previous experience in healthcare and autobiography	10%
Letters of recommendation	30%
Interview	50%

Students will be notified in writing about the outcome of the application process. Notification will be provided within 1 month of completion of interviews. If a seat is offered to a student, acceptance in writing is required to hold the seat until classes begin.

## FINAL PROGRAM ENTRY REQUIREMENTS

Prior to entry into the program, students must complete **all remaining courses listed in the pre-clinical curriculum** or their equivalent at an affiliated university with letter grades of C or better in each course. The pre-clinical curriculum consists of the biological science, chemistry, mathematics, and pre-clinical courses listed under **Admission Requirements**. During the college term immediately preceding entry into the HCMC MLS program, students are required to provide an **unofficial transcript** showing that all courses in the pre-clinical curriculum have either been completed or are in progress. An **official transcript** will be required following the final term prior to entry into the HCMC MLS program.

### MLS Pre-Clinical Competencies

Students must also complete the **HCMC pre-clinical competency objectives** for each major laboratory area. Students demonstrate their readiness for the program through responses to each of the stated objectives. The responses will be evaluated for completeness by the HCMC faculty. Feedback will be provided to both students and their affiliated university in order to plan for improvements in the university curriculum. During orientation week, students should expect a pre-test over the competency objectives that have been identified as **critical competencies**, concepts that are expected to be well understood to provide a foundation for the curriculum.

Updated Pre-Clinical competency objectives, along with instructions on their completion, will be provided to accepted students in late spring for each upcoming fall program start. Critical competencies will be identified at that time. Further instructions on their completion will be provided at that time.

### MLS - MN Department of Human Services Background Study

Students must complete a Minnesota Department of Human Services background study (as required by Minnesota state law) and receive clearance for direct patient contact.

### MLS Entrance Health Assessment

Prior to entering the program, the Program Director and, if necessary, EOHW will review the student's health insurance status and vaccination records. No exit physical is required following completion of the program.

Students are required provide documentation of the following:

1. **Color Blindness:**

Color blindness testing will be performed during the first week of class.

2. **Medical Insurance:**

Hennepin healthcare does not provide individual hospitalization or medical insurance. The student must be covered for medical insurance and show policy numbers, company, and effective dates.

3. **Required Mantoux:**

Documentation of a Tspot/quantiferon gold test within one year or Mantoux TB skin test and follow-up within 6 months of starting the program.

4. **Required Vaccinations:**

Documentation of 2 Mumps, Rubella, Rubeola, and Varicella (chickenpox) vaccinations and/or titer as indicated.

5. **Recommended Vaccination:**

Hepatitis B vaccination is highly recommended. It should be started at least 4 weeks prior to starting at HCMC.

6. **Vaccination against Influenza**

Flu shots are available for students. If a student does not receive the flu shot, they will be required to wear a mask, per hospital policy, during flu season.

7. **Vaccination against COVID-19**

COVID-19 vaccination is required for all employees, volunteers, and students engaged in learning at Hennepin Healthcare.

If the student's records are not complete, any lab tests, X-rays, or vaccinations will be billed to the student's insurance.

***Please note:*** Incomplete records may result in not being allowed to start the training until they are complete.

## **MLS Program Tuition Policies**



The following policies are in place to provide information about the student's rights and responsibilities with regard to tuition for the Hennepin Healthcare MLS program.

Program costs listed in this policy manual do not include any costs or fees required by the student's home university for awarding credits earned at HCMC or for conferring the student's final degree. The costs listed below reflect only those costs incurred by attending the Hennepin Healthcare MLS program.

### **COST OF THE PROGRAM**

All MLS students pay tuition. It may be billed differently depending on the agreement between HCMC and the home university of the student. Some students pay HCMC directly, while other students pay tuition to their home university. Students who pay tuition to their home University are paying HCMC tuition through a contractual reimbursement provision between the university and HCMC. The payment is invoiced and remitted automatically to HCMC by the home university.

Students who pay HCMC directly can expect to be billed a total of \$7000.00 in tuition for the 2022-23 class year. Tuition is payable in 2 installments of \$3500.00 each at the start of each term, fall and spring. Additional fees will be billed to the student by the university.

Students who pay tuition directly to their university will not be directly billed for tuition by HCMC, but will continue to follow their universities billing procedures for tuition and fees.

Expenses include the following:

- Tuition
- Copy fee
- Textbooks
- Paper, binders, and other materials
- Certification exam application fee
- Personal costs including food, housing, clothing, transportation (see Metro Transit Student Pass option below), and parking.
- Access to a personal computer and the internet is highly recommended

<b>EXPENSE DUE DATES AND COSTS</b>
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**MEDICAL LABORATORY SCIENCE PROGRAM INFORMATION**

<b>Dates</b>	<b>Item</b>	<b>Amount</b>	<b>Payable to</b>
Prior to the program start date <i>*cost varies depending on actual textbook costs</i>	Textbooks	~\$700.00	University bookstore or other book seller
August 28, 2023	Fall Copy Fee	\$40.00	Hennepin Healthcare
	Fall Tuition (for Fall start students paying HCMC directly)	\$3500.00	Hennepin Healthcare
	Optional – Fall Metro Transit Student Pass	~\$165.00	Hennepin Healthcare
January 8, 2024	Spring Copy Fee	\$40.00	Hennepin Healthcare
	Spring Tuition (for Fall and Spring start students paying HCMC directly)	\$3500.00	Hennepin Healthcare
	Optional - Spring Metro Transit Student Pass	~\$165.00	Hennepin Healthcare
April 15, 2024	ASCP Board of Certification exam application fee (for Fall start students)	~\$240.00	ASCP Board of Certification
May 13, 2024	Summer Copy Fee	\$40.00	Hennepin Healthcare
	Summer Tuition (for Spring start students paying HCMC directly)	\$3500.00	Hennepin Healthcare
	Optional – Summer Metro Transit Student Pass	~\$85.00	Hennepin Healthcare
July 7, 2024	ASCP Board of Certification exam application fee (for Spring start students)	~\$240.00	ASCP Board of Certification
August 28, 2024	Optional – Fall Metro Transit Student Pass	~\$165.00	Hennepin Healthcare

Failure to pay amounts due will be cause for termination from the program and forfeiture of all amounts previously paid.

**MLS Program  
Financial  
Assistance**

Eligibility and disbursement of Federal Student Aid through the US Department of Education and other forms of financial assistance is accessed through and handled by the home university. This is true whether students pay HCMC tuition directly or through their home university.

**MLS Program  
Refund Policy/  
Buyers Right to  
Cancel**

If your application is rejected, you will receive a full refund of all tuition, fees, and other charges. You will be entitled to a full refund of tuition, fees, and other charges if you give notice that you are canceling your enrollment within 5 days of being accepted into the school or program.

This five-day refund policy applies regardless of when the program starts. If you give notice more than 5 days after being accepted into the program, but before the start of the program (or first lesson for an online distance education program), you will receive a refund of all tuition, fees, and other charges minus 15%, up to \$50, of the total cost of the program.

If you withdraw after the start of your program and it has been more than 5 days after you were accepted into your program, you will receive a pro-rated refund of the entire cost of your program based on your last day of attendance. You will be provided a prorated tuition, fees, and other charges refund minus your initial application fees, up to \$50, and minus the less or 25% of the total tuition or \$100. Proration is based on whether your program is term-based or clock hours and how much of the program you have completed.

If your program is term-based, the completion rate is the number of calendar days from the first date of the program through your last documented date of attendance divided by the length of the program. The completion rate is calculated to the second decimal point (.XX).

If your program is clock-hour based, the completion rate is the number of clock hours you actually attended divided by the number of clock hours in the program. The completion rate is calculated to the second decimal point (.XX)

If you withdraw from your program after 75.00% of the program has completed, you are not entitled to a refund of tuition, fees, and other charges.

You will receive written notice acknowledging your withdraw request within 10 business days after receipt of the notice and you will receive a refund of any tuition, fees, and other charges within 30 business days of receipt of your withdrawal. Any mailed notice is effective of the date of the postmark if sent by mail or the day it has been hand delivered to the school. Notice to withdraw may also be given by email or verbally, including a voicemail, to Lynn Poth, Program Director (defined by school's Student Right to Cancel policy).

If you do not withdraw in writing or contact the school about your absence, and you have not attended your program or contact the school about your absence for 14 consecutive days, you will be considered to have withdrawn from the school as of your last date of attendance. Your school is responsible for sending you a written notice of cancellation if you are withdrawn for failing to attend to your last known address. The confirmation from the school must state that the school has withdrawn you from enrollment, and if this action was not the student's intent, the student must contact the school.

**Transfer Credit/  
Credit for Prior  
Experience Policy**

All Students, regardless of laboratory background, will complete the full scheduled rotation time with the exception of employment as a phlebotomist. Students who have worked as a phlebotomist have the option to test out of the phlebotomy rotations. If a student demonstrates academic and technical competence in a specific area other than phlebotomy, additional objectives for educational enrichment may be assigned.

Courses completed within the MLS program are accepted by the students affiliated university as described in the Affiliation Contract between HCMC and the school. Grades earned at HCMC for those courses will be posted to that universities transcripts. Transferability of coursework to other schools is determined by the home university.

## **Course Descriptions**

### **MLS 200 - CLINICAL CHEMISTRY**

6 credits (dependent on requirements of the home university)

This course will provide the instruction and skill training necessary for entry level work in clinical chemistry. Lectures and workshops focus on the identification and diagnostic testing of commonly identified chemical analytes found in blood and body fluid, how those analytes interact with the body, and the associated disease states. The student will rotate through chemistry benches during Core I and Core II. During each rotation, students will practice automated sample analysis, quality control, and other aspects of bench work under the guidance of a bench instructor. Concepts from lecture will be reinforced during bench rotations.

### **MLS 300 - URINALYSIS**

1 credit (dependent on the requirements of the home university)

This course will provide instruction in Urinalysis that will prepare students for entry level work in areas of the lab that perform urinalysis and microscopy techniques. Lectures and workshops in this course will focus on urines chemical and cellular constituents, diagnostic testing methods, and associated disease states. Students will participate in automated and manual urinalysis testing, quality control, and other aspects of bench testing under the guidance of a bench instructor.

**MLS 400 - MANAGEMENT/EDUCATION**

3 credits (dependent on the requirements of the home university)

This course provides instruction in topics related to laboratory management and education within the clinical laboratory. Lectures and projects in this course will focus on regulatory agencies and their role in quality systems, management theory including supervisory and workplace planning concepts, and education theory including instructional methods and the creation of objectives and test questions.

**MLS 500 - CLINICAL MICROBIOLOGY**

8 credits (dependent on the requirements of the home university)

This course will provide the instruction and skill training necessary for entry level work as a microbiologist. Lectures and workshops focus on the identification and diagnostic testing of bacterial pathogens, susceptibility testing, and associated body sites and diseases. The student will rotate through microbiology benches during Core I and Core II. During each rotation, students will practice staining, ID and susceptibility testing, quality control, and other aspects of bench work including automation under the guidance of a bench instructor and independently with unknowns. Concepts from lecture will be reinforced during bench rotations. This course includes mycology, parasitology, virology, and molecular diagnostics.

**MLS 600 - IMMUNOLOGY**

2 credits (dependent on the requirements of the home university)

This course will provide instruction in clinical immunology that will serve as background information for other areas and will prepare students for entry level work in areas of the lab that utilize immunologic techniques. Lectures and workshops in this course will focus on antigens and antibodies, diagnostic testing methods for immunology, and associated disease states. Students will participate in automated and manual immunology testing under the guidance of a bench instructor in several areas of the laboratory as a part of those bench rotations.

### **MLS 700 - HEMATOLOGY/COAGULATION**

6 credits (dependent on the requirements of the home university)

This course will provide the instruction and skill training necessary for entry level work as a hematologist. Lectures and workshops in the hematology portion of the course will focus on the identification and testing of the cellular elements of the blood and bone marrow, their role in the body, and the correlation between abnormalities and disease states. The coagulation portion will cover coagulation factors and hemostasis, diagnostic testing methods, and the associated disease states. Students will rotate through hematology and coagulation benches during Core I and Core II. During each rotation, students will practice automated sample analysis, automated and manual cell identification, quality control, and other aspects of bench work under the guidance of a bench instructor. Concepts from lecture will be reinforced during bench rotations.

### **MLS 800 - IMMUNOHEMATOLOGY/TRANSFUSION SERVICES**

6 credits (dependent on the requirements of the home university)

This course will provide instruction and skill training necessary for entry level work as a Transfusion Services Technologist. Lectures and other learning modules for Immunohematology will focus on blood and blood components, the antigens and antibodies of importance in blood transfusion, diagnostic testing methods and interpretation of tests, and problem resolution. Students will rotate through Immunohematology bench rotations during Core I and Core II. During each rotation, students will practice automated and manual sample analysis and blood component selection, quality control, and other aspects of the bench work under the guidance of a bench instructor. Concepts from lecture will be reinforced during bench rotations.

## **MLS Program Goals and Competencies**

### **MLS PROGRAM GOALS**

The Hennepin Healthcare MLS Program will:

1. Provide high-quality instruction that will produce an MLS who is competent in the theory and practice of medical laboratory science.

2. Provide the environment necessary to enable each student to develop and demonstrate professionalism and concern for the patient in the daily practice of medical laboratory science.
3. Provide a curriculum that will enable each student to:
  - A. Acquire the theory and technical skills needed to competently perform the procedures included in each clinical course.
  - B. Participate in clinical experiences that will fulfill requirements in the following areas:
    - 1) Chemistry
    - 2) Hematology
    - 3) Coagulation
    - 4) Immunology
    - 5) Microbiology
    - 6) Molecular diagnostics
    - 7) Immunohematology (blood bank)
    - 8) Urinalysis
    - 9) Phlebotomy/specimen collection and processing
    - 10) Laboratory management and education
  - C. Be eligible and prepared to register for a national board certification examination of the profession.
  - D. Function effectively as a responsible MLS upon completion of the program.
4. Provide instructors in all areas who are well qualified and motivated.
5. Develop and use valid testing and evaluation mechanisms.
6. Employ a variety of instructional methods and materials.

## MEDICAL LABORATORY SCIENCE COMPETENCIES

Students graduating from the Hennepin Healthcare MLS program will be able to achieve the following competencies within each course.

### **MLS General Laboratory**

1. Demonstrate knowledge of specimen collection and storage procedures, including proper apparatus, appropriate technique, patient and sample identification, patient status, and test considerations.
2. Evaluate the suitability of specimens for analysis and determine the optimal method of analysis for all analytes.
3. Relate laboratory theory, terms, and abbreviations to practical work.
4. Perform laboratory tests and laboratory quality control and quality assurance procedures, including confirmatory or corrective action procedures indicated by abnormal results.
5. Evaluate validity and diagnostic significance of test results, correlation with

other test results and conditions of the patient, and need for additional tests.

6. Identify limitations and appropriate uses of tests.
7. Transmit results to appropriate areas manually and by computer.
8. Identify and demonstrate the principles of laboratory safety including chemical, electrical, and fire hazards and blood borne pathogen policies as dictated by regulatory agencies.
9. Demonstrate professional conduct (seek feedback, show initiative, confidence, composure, punctuality, and progress) and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and with the public.
10. Apply basic scientific principles in learning new techniques and procedures.
11. Relate laboratory findings to disease processes.
12. Integrate and relate laboratory data generated by various laboratory sections in making judgements regarding possible discrepancies.
13. Perform and complete assigned tasks in an organized and efficient manner within the allotted time, with minimal supervision.
14. Recognize and solve problems relating to pre-analytic, analytic and post-analytic phases of laboratory work.
15. Use laboratory equipment including glassware, balance, manual and automated pipets.

**MLS 200 -  
Chemistry**

1. For specified clinical chemistry procedures:
  - A. describe principles of procedures and reactions
  - B. apply mathematical calculations to practical laboratory situations
  - C. perform procedures including:
    - a. spectrophotometry
    - b. electrophoresis and densitometry
    - c. enzyme immunoassay
    - d. ion selective electrode applications
    - e. blood gas analysis and oximetry
    - f. osmometry
    - g. discrete and random access automated analysis
  - D. meet established turn-around times
2. For specified instrumentation and equipment
  - A. describe principle of operation and key components
  - B. perform preventative and corrective maintenance and repairs
  - C. identify instrumental and technical causes of unexpected results
  - D. troubleshoot instrument malfunctions
  - E. perform necessary calibrations



**MLS 300 -  
Urinalysis**

1. For specified procedures
  - A. describe the principles and limitations of procedures
  - B. perform procedures
    - a. manual and semi-automated urinalysis
    - b. microscopic analysis
    - c. miscellaneous urinalysis tests
    - d. pregnancy test
  - C. identify, analyze and report physical and chemical properties and urine constituents
  - D. explain the chemical reactions in routine and special tests
  - E. distinguish between normal and abnormal elements found in microscopic examination
  - F. recognize contaminants and artifacts
  - G. identify and report fecal fat in stool
2. For specified instrumentation
  - A. describe the principle of operation and key components
  - B. perform preventive and corrective maintenance and repairs
  - C. identify instrumental and technical causes of unexpected results
  - D. troubleshoot all instrument malfunctions
  - E. perform necessary quality control and calibration
  - F. demonstrate correct use and maintenance of the microscope
3. Explain the structure and functioning of the urinary tract

**MLS 400-  
Laboratory  
Management and  
Education**

1. Present educational talks about management topics and case studies utilizing educational methodologies.
2. Distinguish among affective, psychomotor, and cognitive domains.
3. Correlate objectives and test questions with consideration to the level of instruction.
4. Prepare a resume and cover letter.
5. Distinguish between/among the following terms:
  - A. mission statement, goals, objectives and tasks
  - B. quality control, quality assurance, and quality improvement
  - C. proficiency testing and competence assessment
  - D. certification and accreditation
6. Describe characteristics and use of laboratory information systems and electronic health records.
7. Describe career advancement roles for MLS.
8. Gain familiarity with a CAP inspection checklist and other regulatory agency requirements.

9. Demonstrate/discuss principles of management, supervision, and continuing education.

**MLS 500 -  
Microbiology**

1. Describe principles of procedures used to identify 90% of usually occurring bacteria.
2. Perform and interpret a variety of conventional and automated bacteriological bench procedures allowing for the identification of 90% of the usually occurring bacteria.
3. Perform a variety of conventional and automated susceptibility testing procedures.
4. Prepare, stain and microscopically examine and interpret clinical materials and culture isolates.
5. Perform and interpret basic mycological bench procedures allowing for the identification of 80% of the usually occurring yeasts and molds.
6. Perform concentration and staining techniques used for the identification of parasites.
7. Describe principles and procedures of molecular testing.

**MLS 600 -  
Immunology/  
Serology**

1. Describe, identify and discuss functions of the cells and organs of the immune system
2. State immunologic principles and theory regarding antigen-antibody and cellular interactions and describe how these relate to performance and interpretation of laboratory tests.
3. For each immunologic procedure performed or demonstrated:
  - A. describe principle of method
  - B. follow protocol and meet turn-around-time
4. Perform or discuss procedures including:
  - A. serologic screenings and titers involving flocculation and latex and RBC agglutination.
  - B. precipitation methods, RID, and Ouchterlony
  - C. immunoelectrophoresis/immunofixation
  - D. ELISA and other immunoanalyzers
  - E. direct and indirect immunofluorescence
  - F. flow cytometry
5. Instrumentation and equipment
  - A. describe principle of operation and key components
  - B. perform prescribed maintenance and calibration
  - C. identify instrumental and technical causes of unexpected results

D. troubleshoot malfunctions

**MLS 700 -  
Hematology/  
Coagulation**

1. Describe, identify and discuss function of cellular components of blood, bone marrow, and body fluids.
2. Correlate cells and test results with disease states.
3. List factors and steps in coagulation scheme.
4. For routine and special hematology and coagulation procedures:
  - A. describe principles of procedures and reactions
  - B. apply mathematical calculations
  - C. perform procedures including:
    - a. automated cell counting
    - b. manual cell counts on blood (WBC and platelets)
    - c. microscope use and maintenance
    - d. differentials, normal and abnormal, on blood and body fluids
    - e. coagulation testing on optical density and mechanical instruments
    - f. routine and confirmatory manual tests
    - g. meet established turn-around times
5. For specified instrumentation and equipment:
  - A. describe principle of operation and key components
  - B. perform preventative and corrective maintenance and repairs
  - C. identify instrumental and technical causes of unexpected results
  - D. troubleshoot all instrument malfunctions
  - E. perform necessary calibrations

**MLS 800 -  
Immunohematology**

1. Describe, perform, evaluate, and interpret immunohematology testing necessary for blood and blood component therapy:
  - A. antigen typing
  - B. direct and indirect antihuman globulin test
  - C. antibody identification
  - D. compatibility testing
  - E. transfusion reactions
  - F. elutions, adsorptions, neutralizations
  - G. titers
2. Discuss immunohematology principles and theory regarding antigen and antibody reactions in the major blood group systems
3. State general health requirements of potential homologous and autologous

blood donors.

4. Identify donors not meeting the requirements and state reason(s) for deferral or exclusion.
5. List the disease markers used to evaluate potential blood donors.
6. Describe blood components available for therapeutic use with regard to:
  - A. preparation
  - B. storage
  - C. infusion
  - D. indications for use
  - E. leukocyte reduction methods
  - F. irradiation
  - G. autologous/directed donations
7. Interpret and correlate hematology and coagulation results to ensure appropriate blood component therapy in accordance with FDA and AABB requirements
8. Prioritize patient orders. Meet established turnaround times

### **Medical Laboratory Science Schedule**

Students will be provided a tentative schedule with the anticipated dates and times of lectures, exams, and clinical experiences prior to or on the first day of class. Every effort will be made to maintain schedules as posted, but because the Hennepin Healthcare MLS program is part of a working hospital environment, patient care and staffing needs may necessitate changes to the tentative schedule. In the event changes must be made, notification of schedule adjustments to students is a priority.

The class day is 8 ½ hours long each day of the program. Use of that time varies each day based on the schedule, but generally will consist of Monday through Thursday spent on the bench engaged in learning activities with Fridays spent in classroom lecture. A ½ hour break for lunch along with another ½ hour break during the day is also included.

Start times for each day will vary depending on the scheduled activities, however, most days begin at 7:00am and end at 3:30pm. Some workshops are scheduled from 9:00am-5:30pm. Several evening shift experiences will also be scheduled with shifts from 3:30pm-11:00pm. It is possible that an overnight shift will be scheduled from 11:00pm-7:00am, however, this is not available every year. It is essential that students have the flexibility to accommodate fluctuations in hours as needed to accommodate specific learning activities. Students are expected to be present and on time for each lecture.

### MLS PRACTICUM BENCH ROTATIONS

\*Approximate number of days devoted to individual bench's during rotations.

<b>Practicum Bench Rotations</b> (Approximate # of days – Subject to change)		
Bench Area	<b>Days on the bench Core I</b> <i>Fall start - August thru December</i> <i>Spring start – January thru May</i>	<b>Days on the bench Core II</b> <i>Fall start - January thru May</i> <i>Spring start – May thru October</i>
Microbiology	15	15
Molecular Diagnostics	0	3
Transfusion Services	15	15
Hematology	15	11
Chemistry	7	10
Urinalysis	5	2
Toxicology	0	1
Triage/Emergency Dept.	3	0
Evenings	0	5
Phlebotomy	0	3

### MLS WORKSHOPS/LECTURES

\*Approximate hours of instruction. Additional activities designed to reinforce lecture topics occur while on the practicum bench.

Workshops and Lectures		
Content Area	Hours of Workshop/ Lecture in subcategories	Total Hours of Workshop/ Lecture time per Area
Orientation	~20	~20
Microbiology	~23	~83
Parasitology	~24	

**M E D I C A L   L A B O R A T O R Y   S C I E N C E   P R O G R A M   I N F O R M A T I O N**

<b>Mycology</b>	~24	
<b>Molecular Diagnostics</b>	~12	
<b>Immunohematology</b>	~40	~40
<b>Hematology</b>	~50	~50
<b>Chemistry</b>	~46	~53
<b>Urinalysis</b>	~7	
<b>Management/Education</b>	~26	~40
<b>Phlebotomy</b>	~14	