

**STUDENT HANDBOOK
2022 - 2023**

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PHILOSOPHY AND GOALS

Overview of Program and Institution

Pennsylvania Hospital, the nation's first hospital, was founded in 1751 by a group of public-spirited citizens led by Benjamin Franklin and Dr. Thomas Bond. The Hospital is rich in history with a tradition of quality care and community service. The Facility consists of a 515-bed acute care facility, accredited by the Joint Commission on Accreditation of Healthcare Organizations, and licensed by the Commonwealth of Pennsylvania.

The Laboratory is CAP (College of American Pathologists) accredited and licensed by the Commonwealth of Pennsylvania Department of Health. The Blood Bank is additionally accredited by the AABB and the Food and Drug Administration (FDA). The laboratory has a Pathology Residency program accredited by the Accreditation Council for Graduate Medical Education. The laboratory is a fully computerized, progressive laboratory which performs over 1.5 million tests annually.

The School of Medical laboratory science functions within the general structure of the Ayer Clinical Laboratory and is supported as a part of a commitment to provide health care and education to the community. The program currently accepts nine students annually. Hospital Administration continues to support the program in its commitment to provide scientists to educate students.

The School of Medical Laboratory Science at Pennsylvania Hospital is affiliated with the Hospital of the University of Pennsylvania, a top ranked hospital in the U.S. Students will complete fifteen weeks of rotations at the Hospital of the University of Pennsylvania in the routine clinical laboratories and many of their specialty laboratories. Students may also rotate through Penn Presbyterian Medical Center.

Program Mission Statement

The Pennsylvania Hospital School of Medical Laboratory Science has a responsibility to:

- Provide quality education for students seeking a profession in Medical Laboratory Science
- To develop in its students an appreciation of the professional responsibility of rendering service to the sick and injured

Program Goals

In order to achieve its mission, the Pennsylvania Hospital School of Medical Laboratory Science will:

- Maintain accreditation under the National Accrediting Agency for Clinical Laboratory Science. Currently accredited.
- Provide state-of-the-art technology and a stimulating and challenging atmosphere for its students
- Immerse its students in the day to day responsibilities of laboratory staff who are committed to the mission, vision and values of Pennsylvania Hospital
- Provide the community with laboratory practitioners who have a comprehensive knowledge of all aspects of clinical laboratory operation and management

- Prepare students for successful completion of national certification examination in Medical Laboratory Science

Pennsylvania Hospital

Mission Statement

We believe that Pennsylvania Hospital, the nation's first hospital, has a responsibility to:

- Ensure access to superior quality integrated health care for our community and expand access for underserved populations within the community
- Create a supportive team environment for patients, employees and clinical staff
- Foster learning and growth through comprehensive academic and educational relationships
- Exhibit stewardship and creativity in the management of all available resources

Vision

Pennsylvania Hospital will serve as a catalyst and be a primary participant in the formation and operations of a geographically comprehensive, community based integrated health system, providing superior care and service to health care consumers, providers and payers at a very competitive cost. System members will respond to clinical and academic needs cooperatively, sharing opportunities and resources commensurate with capabilities, to provide seamless health care throughout the system and avoid unnecessary duplication and costs. Consistent with the goals of the integrated system, Pennsylvania Hospital will be the preferred source of health care services for our local community and serve the broader market as the preferred provider of specific specialized services.

Values

We Value Superior Quality Care

- We value superior quality health care, seek the best clinical outcomes and provide the highest level of service at a very competitive cost.

We Value Our Staff

- We realize that our employees and healthcare professionals are the source of our superior quality health care: we respond to their needs and foster team relationships among employees, clinical staff and the Board of Managers.

We Value Learning

- We recognize that our commitment to an academic environment attracts and retains superior employees and clinical staff, enhances our clinical quality, provides value to our community and is intrinsic to our identity.

We Value Our Community

- We actively participate with community partners in formulating collaborative approaches to improving the health of our community and solving other local needs.

We Value Our Heritage

- We treasure Pennsylvania Hospital's history and remain true to our tradition of serving the entire community, including underserved populations.

We Value Stewardship

- We are committed to prudent management of our economic resources and to providing services efficiently.

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PROGRAM OFFICIALS

| | |
|-----------------------------------------------|--------------------------------------------------------------|
| Michael Husson, M.D. | Medical Director of MLS School |
| Franz Fogt, M.D. | Chair, Department of Pathology |
| William Hunt, MBA,SH, MLS(ASCP) ^{CM} | Interim MLS Program Director, Lab Administrative Director |

PROGRAM FACULTY

| CLINICAL DISCIPLINE | DIDACTIC FACULTY | CLINICAL FACULTY |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bacteriology / Mycology / Parasitology/ Mycobacteriology | Multiple faculty | Tracy Healy, MT(ASCP) Andrea Worrall, MT(ASCP) |
| Central Receiving and Processing | Tierra White, MLS(ASCP) ^{CM} | Tierra White, MLS(ASCP) ^{CM} |
| Chemistry Toxicology Point of Care Testing Immunology HUP Endocrinology HUP | Michael Husson, MD | Jonathan Meyer, MLS(ASCP) Melissa Sims, MT (ASCP) Judy Edling-Owens, MT(ASCP) Lisa Constantine, MLS(ASCP) ^{CM} Andy Gaano, MLS(ASCP) ^{CM} Nancy Mayer, MT (ASCP) |
| Hematology Special Coagulation HUP | Margaret Reinhart, M. Ma. Jui-Han Huang, MD | Travis Bicher, MLS(ASCP) ^{CM} Beverly Ptashkin, MT(ASCP) Ted Rutledge MLS(ASCP) ^{CM} |
| Immunoematology HUP PPMC HLA | Marcia Marchese, MS, MLS(ASCP) ^{CM} | Patricia Ashenfelter, MT Rachel Davis-Rausser, BB(ASCP) Francis Mateo, MT(ASCP) Melissa Personius, MLS(ASCP) ^{CM} , CHS |
| Immunology / Serology Flow Cytometry | Erin Henry, MLS(ASCP) ^{CM} | Andrew Gaano, MLS(ASCP) Qun-bin (QB) Xiong, MT(ASCP) |
| Management | William Hunt, MBA,SH, MLS(ASCP) ^{CM} | |
| Molecular Pathology | Jacqueline Roth, PhD, ABMGG Jennifer Morrissette, PhD | Caren Gentile, MS Patrick Candra, MB(ASCP) ^{CM} Vania Aikawa |
| Phlebotomy | Tierra White, MLS(ASCP) ^{CM} | Tierra White, MLS(ASCP) ^{CM} |
| Urinalysis and Body Fluids | Michael Husson, MD | Linda Fitzgerald, MT(ASCP) |

TELEPHONE DIRECTORY

PAH (215) 829-

| | |
|------------------------------------------------------------------------------|--------------|
| Blood Bank Lab----- | 3218 |
| Blood Bank (HUP)----- | 215-662-3448 |
| Blood Bank (PMC) ----- | 215-662-8336 |
| Central Processing Lab—3552 Cytology 6969 Gross Room 5135 | |
| Center for Pers Diag (3020 Market)215-662-3966 Cytogen 215-662-4937 | |
| Chemistry Lab / Urinalysis----- | 3551 |
| Endocrinology Lab (HUP)----- | 215-662-3420 |
| Nancy Mayer ----- | 215-662-4020 |
| Flow Cytometry----- | 215-662-6024 |
| Immunology Lab----- | 215-662-6023 |
| Hematology Lab (PAH)----- | 5044 |
| Hematology Autolab (HUP) ----- | 215-662-6833 |
| Special Hematology (HUP)----- | 215-662-6196 |
| HLA Lab----- | 215-662-6010 |
| MLS School Office (Jean) ----- | 7634 |
| Microbiology Lab----- | 3555 |
| Microbiology Lab HUP----- | 215-662-3406 |
| Molecular Lab----- | 215-662-6121 |
| Out Patient Lab --- 5032 (PAH)--PM Wash Sq (8 th fl) 215-454-3459 | |
| Personalized Medicine (CPD) -215-662-(3966) Cytogenetics—(4937) | |
| Special Coag Lab HUP----- | 215-662-3458 |
| Toxicology Lab----- | 215-662-3474 |
| Fire and Medical Emergencies, PAH---5050 Security----- | 3434 |

NAACLS-----773-714-8880

**(National Accrediting Agency for
Clinical Laboratory Sciences)**

**5600 N. River Rd., Suite 720
Rosemont, IL 60018
www.naacls.org**

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ACADEMIC AND HOLIDAY SCHEDULE 2022 August Cohort

| DATE | |
|-------------------------|------------------------------|
| September 5 | Labor Day - Holiday |
| November 24 & 25 | Thanksgiving – Holiday |
| December 16 – January 3 | Semester Break |
| January 16 | Martin L. King Day - Holiday |
| April 3-7 | Spring Break |
| May 29 | Memorial Day – Holiday |

January 2022 Cohort

| DATE | |
|--------------------------------------|------------------------|
| January 17 | MLK - Holiday |
| April 11-15 | Spring Break |
| May 31 | Memorial Day – Holiday |
| June 13 – August 7 (To be confirmed) | Summer Break |
| Sept. 5 | Labor Day - Holiday |
| Nov 24 - 25 | Thanksgiving - Holiday |
| December 16 (To be confirmed) | Graduation |
| | |

COLLEGE/UNIVERSITY AFFILIATIONS

The School of Medical Laboratory Science at Pennsylvania is affiliated with Gwynedd-Mercy College, East Stroudsburg University, Pennsylvania State University, University of the Sciences in Philadelphia, West Chester University, Wilkes University and York College. Upon successful completion of the program, students are granted a baccalaureate degree from their affiliated college or university and receive a certification of completion from Pennsylvania Hospital. Postgraduate students will receive a certificate of completion from the hospital. Students are then eligible to take a national certification exam in Medical Laboratory Science offered by the American Society for Clinical Pathology. In states with licensure, students are then eligible to apply for licensure. Issuing of the baccalaureate degree or the certificate of completion is not dependent on successful certification or licensure.

ADMISSIONS POLICY

POLICY

Admission to the program is determined by an Admissions Committee under a general policy of offering admission to those students whose academic performance, recommendations by references and attributes in the affective domain indicate the highest probability of success. Students from an academic affiliate of the hospital program will receive preference in the case of equal rankings.

ADMISSIONS COMMITTEE

The Admissions Committee is composed of the Program Director and two faculty members.

RECOMMENDED CRITERIA FOR ADMISSION TO THE PROGRAM

1. Minimum GPA in chemistry and biological sciences of 2.5.
2. Minimum overall GPA of 2.8.
3. Three references: 2 technical, 1 personal.
4. Personal interview: applicant is evaluated as to accountability, ability to work with others, ability to manage time and resources, self-confidence, communication and interpersonal skills, general maturity and motivation toward medical laboratory science.
5. Transcript evaluation is performed by the University or College Program coordinator and/or by the Program Director.

RECOMMENDED PRE-REQUISITE CURRICULUM

1. 90 semester hours or 135 quarter hours of study in an accredited college or university.
2. CHEMISTRY - Organic and/or Biochemistry must be included. The content of the chemistry course must be acceptable toward a major in this field or in medical laboratory science, or be certified by the college/university as equivalent. Survey courses do not qualify as fulfillment of the chemistry prerequisites.
3. BIOLOGICAL SCIENCES - Microbiology is required; Immunology must be included as a part of Microbiology or as a separate course. The content of the biological science course must be acceptable toward a major in this field or in medical laboratory science, or be certified by the college/university as equivalent. Survey courses do not qualify as fulfillment of the biology prerequisites. Courses in Human Anatomy/ Physiology and Genetics/Molecular Biology are recommended.
4. Applicants who have met the above minimum course requirement seven or more years before application must update their Microbiology and Biochemistry courses at the discretion of the Program Director.
5. All required pre-clinical medical laboratory science courses must be completed and student must be eligible for a baccalaureate degree from affiliated college/university or must currently hold a baccalaureate degree.
6. Foreign degree applicants whose degree is from a foreign university must first have an official transcript evaluated by World Education Services, Inc, New York, NY.
7. Foreign degree applicants who did not receive their degree in the biological sciences or in chemistry need to complete 16 semester hours or 24 quarter hours of course work in both disciplines.

ABILITY TO MEET ESSENTIAL FUNCTIONS OF PROGRAM:

1. The student must, with or without reasonable accommodation, have sufficient:
 - a. Visual acuity to be able to identify microscopic structures, cells, organisms and color recognition; to operate analytical instruments appropriately and safely without substantially endangering students, coworkers and patients.
 - b. Fine motor skills and manual dexterity to obtain and manipulate specimens, reagents, instruments and analytical equipment according to established guidelines with speed, accuracy, precision and in a manner that does not endanger others.
 - c. Communication skills to effectively convey and/or explain results to other health care personnel, both within and outside the laboratory.
 - d. Interactive skills to maintain cooperative and productive working relationships with patients and other health care personnel.
 - e. Emotional stability to exercise appropriate judgment in responding to emergency situations that may present in the health care environment.

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- f. Ability to effectively handle stressful situations.
- g. Ability, with or without reasonable accommodation, to safely perform all core tasks required of a medical laboratory scientist.

PROCEDURE

1. Applicants must meet the recommendations set forth in the pre-requisites for admission to the program to be considered eligible for admission.
2. Application is recommended one year prior to the August starting date for the program.
3. Individuals desiring admission into the program must submit an application, three references, and recent transcript.
4. Applicants must schedule and complete a personal interview with the Admissions Committee prior to the interview the applicant would review general section of the Student Manual online. Each applicant is also given a tour of the laboratory.
NOTE: At the time of the interview the Essential Functions will be reviewed with the applicant. The applicant is made aware that if during the clinical portion of the program the student is deemed not able to perform the Essential Functions, the student may be dismissed, unless a reasonable adjustment can be made to allow the student to perform satisfactorily.
5. Applicants will be notified in writing of acceptance to the Medical Laboratory Science Program.
6. Acceptance or rejection of the position is to be made in writing to the Program Director within two weeks after mailing.
7. A final transcript must be submitted by the student.
NOTE: Should the student meet entrance requirements at time of selection, but fall below the GPA requirement in subsequent semesters at the college, the student's record will be re-evaluated by the admissions committee, probation may be necessary.
8. Information will be sent to accepted applicants with information pertaining to: program starting date, textbook costs, tuition, vaccination requirements, orientation week and any other information deemed necessary to the student.
9. Students will undergo a background check, drug screen and color blindness test upon entering the program.

FEES AND EXPENSES POLICY

TUITION - The tuition fee for this program is established and reviewed annually in the fall. The Fee is payable in two (2) installments, due before the first day of class for the first semester, and January for the second semester. The program is not eligible for Title IV funding and does not offer financial aid. Students receiving financial aid from their college or university will continue to receive aid during their internship as it represents the 4th year of college or university study.

- a. **Penn State University** will be billed by the hospital for those undergraduate students enrolled from those institutions. University policy is to reimburse the hospital from tuition it receives from the students at a percentage of the tuition each semester.
- b. **Students of other affiliates, graduates and students enrolled under temporary agreement** will be billed directly by the hospital at the rate and times stated in this policy. Payment is made by the individual student to Pennsylvania Hospital.
- c. If a student does not complete the program, refunds for tuition paid will be negotiated. Any subsequent tuition to the hospital will not be billed.
- d. If a student fails to pay tuition, student will not be awarded a graduation certificate nor will grades be forwarded.

BOOKS - Students are required to purchase their own textbooks. The books are made available from Dolbeys Medical Bookstore.

TRANSPORTATION - Transportation costs from HUP to PAH are the students responsibility. One hour is allowed for transportation; public transportation is accessible (bus, trolley, subway).

LIABILITY INSURANCE – Students are required to purchase liability insurance (USP provides this for its students). Marsh Insurance Co. has student medical laboratory science insurance, price \$41.

HEALTH INSURANCE – All students are required to have health insurance.

CURRENT FEE SCHEDULE

| | | |
|---------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TUITION | \$13,000.00 | Biannual Payments of \$6,500.00 due before class begins and in January. PENN STATE STUDENTS PLEASE NOTE THAT YOUR TUITION IS DETERMINED BY THE UNIVERSITY, AND NOT PENNSYLVANIA HOSPITAL, THEREFORE YOUR TUITION WILL DIFFER FROM THE ABOVE. |
|---------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

JOB ENTRY LEVEL COMPETENCIES

Graduates of the program are expected to achieve certain job-entry level competencies, so only the usual orientation needed by a new employee would be required for full productivity. At career entry the Medical Laboratory Scientist will:

1. Be proficient in collecting and processing biological specimens for analysis.
2. Be proficient in performing the full range of clinical laboratory tests in hematology, chemistry, immunohematology, microbiology, serology/immunology, coagulation, molecular and other emerging diagnostics.
3. Perform preventive and corrective maintenance of equipment and instruments or refer to appropriate source for repairs.
4. Make judgments concerning the results of quality control measures and institute proper procedures to maintain accuracy and precision.
5. Analyze and correlate laboratory data to make clinical decisions regarding abnormal results, possible discrepancies, and probable patient diagnosis.
6. Participate in the evaluation of new techniques and procedures.
7. Recognize and act upon individual needs for continuing education as a function of growth and maintenance of professional competence. Apply the principles of education methodology.
8. Have responsibilities in area of laboratory safety, regulatory compliance, and quality assurance/performance improvement.
9. Possess basic knowledge, skills and relevant experiences in:
 - a. Communications to interact professionally with patients and colleagues and to consult with members of the health care team.
 - b. Finances, operations, marketing, and human resource management of the clinical laboratory to enable cost-effective, high-quality laboratory services.
 - c. Information management to enable effective, timely, accurate, and cost-effective reporting of laboratory-generated information.
 - d. Research design/practice sufficient to evaluate published studies as informed consumer.

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PROGRAM COURSES

The 11 month rotating program is based on a 40-hour week and provides both practical and theoretical training in the various sections of the clinical laboratory. The following table outlines the clinical experience within the different sections of the laboratory.

| COURSE NUMBER | COURSE TITLE | LECTURE HOURS | LABORATORY HOURS | PAH CREDIT HOURS |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|------------------|
| MT490 | <p style="text-align: center;">CLINICAL HEMATOLOGY/COAGULATION</p> <p>Composition and function of blood; diseases related to blood disorders; and role of platelets and coagulation. Manual and automated techniques of diagnostic tests for abnormalities</p> | 43 | 175 | 7.0 |
| MT491 | <p style="text-align: center;">CLINICAL IMMUNOHEMATOLOGY (INCLUDES HISTOCOMPATIBILITY ROTATION)</p> <p>Review of immunologic and genetic principles that relate to Immunohematology. Procedure/topics to cover blood collection, donor testing, storage and labeling of blood products, per-transfusion resting, adverse reactions to transfusion, histocompatibility, and regulatory requirements of FDA, CAP, and AABB</p> | 30 | 175 | 6.0 |
| MT492 | <p style="text-align: center;">CLINICAL CHEMISTRY (INCLUDES TOXICOLOGY AND ENDOCRINOLOGY ROTATION)</p> <p>Enzymology, endocrinology, biochemistry of lipids, carbohydrates and proteins; metabolism of nitrogenous end products; physiology and metabolism of fluids and electrolytes; and toxicology as related to the body and diseases. Technical procedures include colorimetry, spectrophotometry, electrophoresis, chromatography, automation and quality control</p> | 38 | 150 | 7.0 |
| MT493 | <p style="text-align: center;">CLINICAL MICROBIOLOGY</p> <p>Review of all aspects of Bacteriology, Mycobacteriology, Mycology, and Parasitology, including specimen processing, culture identification, clinical features of infectious disease, and the role of the clinical microbiology laboratory.</p> | 54 | 200 | 7.0 |
| MT494 | <p style="text-align: center;">CLINICAL IMMUNOLOGY/SEROLOGY (INCLUDES FLOW CYTOMETRY ROTATION)</p> <p>Immune response, immunoglobulins, autoimmunity, complement, disorders of immunity, and related tests. Survey and demonstration of serological diagnostic tests. Basic principles of Virology and Spirochetology and related tests.</p> | 17 | 75 | 3.0 |

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| | | | | |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------|-----|
| MT495 | CLINICAL SEMINAR I (includes below) | 30 | 80 | 4.0 |
| | PHLEBOTOMY | 4 | 25 | |
| | SPECIMEN COLLECTION & PROCESSING | 1 | 5 | |
| | MANAGEMENT/QUALITY ASSURANCE | 10 | 25 | |
| | EDUCATION/CASE STUDIES/REVIEW | 4 | | |
| | MOLECULAR PATHOLOGY | 12 | 25 | |
| MT496 | CLINICAL URINALYSIS Renal anatomy and physiology, normal and abnormal Urinary constituents, basic laboratory urinalysis, including processing, analysis, and reporting results of urine specimens. Formation, function and testing of body fluids. | 9 | 50 | 2.0 |
| MT497 | CLINICAL SEMINAR II (includes below) | 9 | 6 | 1.0 |
| | ORIENTATION/INTRODUCTION TO CLS | 3 | | |
| | LABORATORY SAFETY/HIPAA | 1 | | |
| | RESEARCH DESIGN | 3 | | |
| | LABORATORY INFORMATION SYSTEM | 1 | | |
| | LABORATORY PROCEDURE WRITING | 1 | | |
| | ANATOMIC PATHOLOGY/CYTOLOGY | | 6 | |
| MT 498 | OPTIONAL TECHNICAL TRAINING | | < 20/WEEK | 1.0 |

Note: Affiliated colleges and universities assign credit according to individual requirements

Immunology (3 weeks), Blood Bank (2 weeks), Microbiology (2 weeks), Endocrinology, Hematology, Special Coagulation, Toxicology, Molecular Diagnostics, Flow Cytometry,, and Histocompatibility rotations are one week each (unless otherwise noted) at the Hospital of the University of Pennsylvania. Select students will complete Blood Bank (4 weeks) at Penn Presbyterian Medical Center. All other applied education assignments are at Pennsylvania Hospital. Detailed lecture and rotation schedules are found on the G drive in the MLS folder.

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TEXTBOOK LIST

Clinical Chemistry:

Textbook:

Rifai, Horvath, Wittwer (Ed.): Tietz Fundamentals of Clinical Chemistry, 8th ed., Saunders Elsevier., Philadelphia, 2019.

Clinical Hematology :

Textbook I :

Turgeon, ML. : Clinical Hematology Theory and Procedures, 6th ed., Wolters Kluwer 2018.

Harmening, Finnegan: Heme Notes: A Pocket Atlas of Cell Morphology, FA Davis, Phila., 2014.

Clinical Immunohematology:

Textbook:

Harmening, D.M.: Modern Blood Banking and Transfusion Practices, 7th ed., F.A.Davis Co, Philadelphia, 2018.

Reference: (copies provided)

Technical Manual of the American Association of Blood Banks, 18th ed., AABB Press, 2014.

Clinical Immunology, Serology, Virology :

Textbooks:

A. Stevens, C.: Clinical Immunology and Serology, A Laboratory Perspective, 5th ed., F.A. Davis Co., Philadelphia, 2017.

B. Mahon, C., Manuselis, G.: Textbook of Diagnostic Microbiology, 6th ed., Saunders Elsevier, Philadelphia, 2018.

Clinical Microbiology (Bacteriology, Mycology, Mycobacteriology, Parasitology):

Textbooks:

Mahon, C., Manuselis, G.: Textbook of Diagnostic Microbiology, 6th ed., Saunders Elsevier, Philadelphia, 2018.

OR

Tille, P: Bailey & Scott's Diagnostic Microbiology, 14th ed., Elsevier, Philadelphia, 2018.

DPDx Laboratory Identification of Parasites of Public Health Concern website at cdc.gov.

Clinical Microscopy:

Textbook:

Strasinger, S. K.: Urinalysis and Body Fluids, 6th ed., F.A. Davis Co., Philadelphia, 2014.

Molecular Pathology:

Textbook:

Buckingham, L. et al: Molecular Diagnostics: Fundamentals, Methods & Clinical Applications, 3rd Ed, F.A. Davis, Philadelphia, 2019.

General:

All current CLSI documents (found on G drive, folders titled CLSI, CLSI 2)

Clinical Laboratory Service Manual

<http://uphsxnet.uphs.upenn.edu/pahhome/laboratory/manuals/services/index.html>

Paradigm Procedures for PAH, HUP and PPMC

GRADING POLICY

1. A passing grade in each section must be achieved before recommendation to a certifying examination will be granted by the program.
2. The minimum passing grade is 70% in each area of didactic instruction and 80% in each area of practical instruction
3. Lecture grades for each section are determined by written examinations.
4. Laboratory grades for each section are determined by practical examinations, unknowns, written examinations, and evaluation by instructors.
5. If an exam is not taken on the scheduled day, the exam grade will be decreased by 10 points (one letter value) unless a doctor's note is provided.
5. The final course grade = 50 % laboratory grade and 50% lecture grade unless otherwise stated or required by the student's college or university.
6. Advanced placement is NOT a policy of this program.
7. Equivalencies: 90-100 = A
 86-89 = B+
 80-85 = B
 76-79 = C+
 70-75 = C
8. Transcripts sent to student's college or university at the conclusion of the hospital program reflect the credit hours and quality point values as set by the college or university.
9. For students from affiliated colleges and universities, a B.S. degree is granted as well as a certificate from the Hospital. Others will receive a certificate from the Hospital.

ACADEMIC DISMISSAL POLICY

1. The student must maintain the minimum passing grades as stated above.
2. Student progress will be monitored quarterly, failure to maintain a minimum average in any department will result in the following course of action.
 - a. Student notified of unsatisfactory performance by Program Director in person and in writing. A Student Coaching Record is provided for this purpose. A remedial course of action is decided upon and recorded. Two coaching records with indications of first, second and third warning can result in probation.
 - b. Didactic instructor or laboratory supervisor determines the time allotted to improve performance at which time the student will be reevaluated. With multiple coaching records time on probation will be decided.
3. Continued unsatisfactory performance in the department will result in dismissal from the program. There is no suspension.
4. Students dismissed from the program for academic reasons may file an appeal via the Grievance/Appeals Policy on page 18.
5. Students failing or withdrawing from the program may have the option of returning to the affiliated University and earning a baccalaureate degree in a curriculum other than medical laboratory science.

ACADEMIC HONESTY POLICY

Honor Code: *Every student shall be honor bound to refrain from cheating (including plagiarism, photographing or copying exams). Every student shall be honor bound to report immediately all violations of the Honor Code of which the student has first-hand knowledge; failure to do so shall be a violation of the Honor Code.*

All course work submitted for evaluation is pledged with the student's name: *"On my honor, I pledge that I have neither given nor received help on this work, and I am unaware of any violations of the Honor Code by others."* In pledging his or her work, the student affirms that any significant learning must be done within the boundaries of the pledge, that any knowledge falsely represented as one's own is hollow and without merit.

Every student found guilty of a violation of the Honor Code is subject to dismissal from the Program.

ATTENDANCE POLICY and LATENESS POLICY

ATTENDANCE: Students are expected to be in attendance at all times. Excessive absences will result in additional days in the laboratory, an unsatisfactory rating on the laboratory student evaluation, and a written warning from the Program Director. Consecutive warnings may result in Dismissal from the program.

If unable to attend due to illness, the student must notify the laboratory or lecture instructor an hour before the start time **by phone** and the Program Director before 9:00 AM by phone or email. If a student is ill and confined to bed for more than two days, he/she will be required to submit a note from a physician.

If a personal day is required, it must be scheduled with the Program Director and with the Rotation Supervisor at least two weeks in advance.

If you need to leave early any day, it must be scheduled with the Program Director and with the Rotation Supervisor at least one week in advance.

Teams lectures: Students are expected to have their cameras on and their microphones ready to be turned on. Please let instructor and Jean know if you are having technical difficulties.

LATENESS: Students are expected to be at their respective laboratory rotation at the time designated by that section. Excessive lateness will result in additional days in the laboratory, an unsatisfactory rating on the laboratory student evaluation, and a written warning from the Program Director. Consecutive warnings may result in dismissal from the program.

GENERAL DISMISSAL POLICY

Dismissal is the permanent withdrawal of the student by the Director of the Program of the privilege of class attendance and laboratory rotation at Pennsylvania Hospital with no promise (implied or otherwise) that the student may return at any future time.

Misconduct which may result in Dismissal consists of the following offenses:

1. Violation of written Hospital policy or regulations contained in any official publication or administrative announcement of PA Hospital.
2. Forgery, alteration, destruction, falsification, or misuse of Laboratory documents, records, reports, test results.
3. Use, possession, or carrying of firearms (including, but not limited to pistols, rifles, shotguns, or ammunition), knives, explosives, or other dangerous weapons while on hospital-owned property.
4. Use, possession, or distribution of alcoholic beverages on Hospital property shall comply with laws of the Commonwealth of Pennsylvania and Hospital Policy.
5. Use, possession, distribution, or being under the influence of narcotics or dangerous drugs.
6. Theft of or damage to Hospital property.
7. Physical abuse of any person on Hospital-owned property.
8. Disorderly conduct or lewd, indecent, or obscene conduct on Hospital owned or controlled property.
10. Academic dismissal due to poor grades, policy page 15.
11. Academic dishonesty including, but not limited to cheating and plagiarism, policy page 16.
12. Academic dismissal due to failure to meet expectations of Essential Functions of program, page 8.
13. Chronic absence or lateness, policy page 16.
14. Endangering the life/wellbeing of the patients.

Reasons for a recommendation for dismissal of a student are fully documented and discussed with the student. Signatures of all persons involved appear on the documentation statement. The Coordinator of the affiliated institution involved is notified of the recommended action to be followed.

If the student voluntarily withdraws from the program, no further action will be taken.

QUALIFIED SUPERVISION POLICY

In laboratory rotations students will be with an instructor. After demonstrating proficiency, students may be permitted to perform procedures under qualified supervision.

GRIEVANCE/APPEALS POLICY

Academic and non-academic grievances are handled in the same way. Any student with a problem or a complaint concerning his work study program may avail him/herself of the following procedures:

1. Person or persons involved should attempt to resolve the problem, or differences in preliminary discussions.
2. In cases where the involved persons cannot resolve the problem, it should be taken to the immediate supervisor or the Program Director. Any action taken in this step and following steps are to be documented on a complaint record and signed by the involved persons.
3. If the problem has not been resolved by the immediate supervisor or the Program Director to the satisfaction of the involved person (within 5 working days) the student must submit the grievance in writing to the Grievance Committee. A blank student Complaint Record can be found on the G drive in the MLS folder. The completed complaint record will be filed in a separate location, it will not be part of the student's file of permanent record.
4. The Grievance Committee is comprised of the Program Director, Supervisor of Nursing Education, Administrative Director of the Laboratory and the Director of Human Resources or designee.
5. If the problem cannot be resolved the Medical Laboratory Science Advisor of the affiliated College shall be informed of the situation. The decision of the Program officials will be final.

VOLUNTARY WITHDRAWAL POLICY

The Program Director shall be notified in writing if a student is voluntarily withdrawing from the program. The withdraw will be submitted to the Administrative director of the laboratory. A written confirmation of the withdraw will be sent to the student.

RETENTION OF RECORDS POLICY

Student records from the past 10 years are kept in hard copy form in the Program Coordinator's office or in Iron Mountain Archives. These files contain all documents pertinent to the student's admission to, progress in and completion of the Pennsylvania Hospital program. Student files are open to the student at her/his request with the exception of reference letters if the student has waived the right of access.

Student records over 10 years are in the form of a Database file located in the Program Coordinator's Office. This file list student name, year of graduation, letter grades in each subject, and pass/fail record of a national certification examination. Beginning with the class of 2001, the student's GPA is listed and a hard copy of the student's transcript from the program is retained.

HEALTH SERVICES POLICY

The Pennsylvania Hospital Medical Laboratory Science Program requires each student to carry adequate health insurance, which shall not be permitted to lapse during the Program. There is no program or hospital group coverage available to the student. A student who sustains work-related injuries or work-impacted illnesses (such as conjunctivitis) will be treated in Employee Health. For acute, but non-work related illness, students may use the Pennsylvania Hospital Emergency Services on the same basis as any other patient.

The health and safety of students is safeguarded by requiring updated immunizations (reviewed by PAH Employee Health), by providing a safety in-service, and by providing appropriate personal protective equipment in all areas of the laboratory.

While training in the Department of Pathology and Laboratory Medicine of the Hospital of the University of Pennsylvania, students who are injured or become suddenly ill may use the hospital's Emergency Services on the same basis as any other patient. Follow-up for needle sticks or exposure may be done at PAH Employee Health.

COVID-19 POLICY

The MLS Program will follow Penn Medicine/Pennsylvania Hospital guidelines to prevent transmission of COVID-19. Students are expected to wear masks in the hospital and follow social distancing guidelines. Time missed from rotation will need to be made up during program breaks.

SAFETY POLICY

Students will comply with the Safety Standards as described in the Ayer Lab Safety Manual, the Pennsylvania Hospital Infection Control Manual, and the Pennsylvania Hospital Emergency Manual.

Students will follow any special safety instructions and wear personal protective equipment as designated by each laboratory.

A safety in-service is provided during the Hospital Orientation which students attend during Orientation. The laboratory safety in-service is provided by the laboratory safety officer during the Orientation Week.

ACCEPTABLE CONDUCT AND DRESS CODE POLICY

Students are expected to present themselves regarding dress and conduct in a professional manner at all times. Shorts, sweat pants, sweat shirts, and jeans are not permitted at Pennsylvania Hospital. Scrub color for the lab is hunter green. Other clothing should not violate current safety policies found in the Laboratory Safety Manual (eg .open-toe shoes). Professional conduct includes strict regard for the confidential nature of all laboratory patient testing.

Lab Dress code policy found on the PAH Intranet under Allied Health, Policy Manual, Professional Image Policy.

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No cell phones outside backpacks during lab rotations, lectures or exams, except in emergency situations with pre-approval. Cell phones may be used in student room during break.

During exams, all student belongs will be placed at the back of the examination room. Students are expected to cover/protect their work during exams.

LIABILITY INSURANCE POLICY

Students enrolled in the Pennsylvania Hospital Medical Laboratory Science Program are required to have professional liability insurance. For those students who cannot obtain professional liability coverage through one of the academic affiliates of the Pennsylvania Hospital School of Medical Laboratory Science, professional liability insurance is made available through Marsh Affinity Group Services.

HIPAA POLICY

Students will participate in training and comply with hospital policy relating to Health Insurance Portability and Accountability Act of 1996.

STUDENT SERVICE WORK POLICY

Once the student has completed the rotation in a clinical area and has been determined proficient in the area he/she may be given the opportunity to work part-time as a Technical Trainee for compensation, if they so desire.

The student is given the responsibility for performing the tests and reporting results under the direction of a staff technologist with the approval of the supervisor, outside of regular academic hours. As a part-time employee the student is subject to UPHS/PAH employee regulations.

This training is non-compulsory, but is an integral part of the established curriculum. It is offered for 1 academic credit as course: MT 498 and is allowed as Curricular Practical Training (CPT) for international students in F-1 status. This is designed as a Pass/Fail course based on satisfactory work as determined by laboratory supervisor and without being placed into performance management. Academic credit is awarded for a passing grade.

SNOW DAY POLICY

There are no snow days for essential personnel in healthcare. Students who live within walking distance of the hospital or use public transportation are expected to be here (unless public transportation is shut down). Students who rely on personal transportation must use their discretion.

PENNSYLVANIA HOSPITAL MEDICAL LIBRARY

- Access to approximately 350 print and over 2000 electronic journal subscriptions.
- Internet access for searching from library PCs
- 24 hour access to library materials

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- One free photocopy of any library materials
- Instruction and training in performing literature searches
- Reference assistance from staff

In addition the Students may access current subscriptions to Laboratory Periodicals held by the laboratory staff.

STANDARDS FOR FACULTY

The MLS program shall maintain qualified faculty as defined by the National Accrediting Agency for Clinical Laboratory Science (NAACLS) standards. The program director shall administer the program on a day-to-day basis and perform the duties as defined in the job description for a program director at Pennsylvania Hospital. This includes ensuring all provisions of the Standards are met and maintained.

The didactic faculty are responsible for teaching courses, developing curriculum, evaluating student achievement and course effectiveness. Didactic faculty also have input in forming program policies and procedures, as well as maintaining effective communication with the program director.

The clinical faculty including the clinical liaisons are responsible for supervising and coordinating the clinical laboratory learning experience, monitoring and evaluating student achievement/performance and developing curriculum. Clinical faculty and clinical liaisons also provide input in forming program policies and procedures, as well as maintaining effective communication with the program director.

Other PAH employed laboratory co-workers may participate as adjunct faculty of the MLS program. They may teach courses, supervise clinical laboratory learning experiences, evaluate student achievement and develop curriculum. The adjunct faculty will be evaluated by the students and may be removed based on the results of student evaluations.

All faculty members must demonstrate adequate knowledge and proficiency in their content areas and demonstrate the ability to teach effectively at the MLS level. They shall maintain continuing education as required by NAACLS standards.

Faculty recruitment and employment practices shall be non-discriminatory and in accordance with the regulations of the government and Penn Medicine. Primary faculty positions are recruited cooperatively by the program director, administrative director of the laboratory and medical director.

STANDARDS FOR PROGRAM EFFECTIVENESS

The Pennsylvania Hospital School of Medical Laboratory Science is committed to insuring quality in the MLS program. Review and analysis of outcome measures provides a systemic approach to ensure program effectiveness. The following tools are

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used to collect data to monitor program effectiveness, also listed are the standard which triggers action:

1. Board of Certification (BOC) pass rate
 - a. NAACLS and the PAH MLS program standard are a 75% pass rate average for three consecutive years for the graduates who take the exam within the first year of graduation.
2. Graduation rate
 - a. NAACLS and the PAH MLS program standard are a 70% graduation rate average for three consecutive years for the students who have begun the final half of the program. The final half of the program begins after winter break.
3. Graduation placement rate
 - a. NAACLS and the PAH MLS program standard are a 70% graduation placement rate for respondent graduates who find employment as an MLS or in a closely related field or continue their education within one year of graduation.
 - i. A respondent graduate is defined as a graduate who completes the MLS program one year graduate survey.
4. MLS program graduate one year post graduation survey
 - a. The program survey standard is a minimum average score of 3 out of 4 for each category of the survey.
5. MLS program employer survey
 - a. The program survey standard is a minimum average score of 3 out of 4 for each category of the survey.
 - b. The employer survey is sent after the graduate completes their survey. For those graduates employed outside of Penn Medicine, employer contact information is requested in the survey.
6. Resources
 - a. The general, financial and physical resources of the MLS program are reviewed with the Fall Advisory Committee meeting.
 - b. The standard is set by Hospital Administration according to the review of the program's financial standing.
 - c. Faculty have input into the necessary supplies needed to the program.
 - d. Data is presented and reviewed at the Fall Advisory Committee meeting.

Any year of data that does not meet the program standard and /or NAACLS standard are reviewed and analyzed by the program director. Any changes made, based on input from the faculty and advisory committee, are monitored for at least a year for the effect on the program.

APPLIED EXPERIENCE POLICY AND PROCEDURE

If a clinical affiliate should want to terminate their affiliation with the Medical Laboratory Science program at Pennsylvania Hospital, all students enrolled in the program at the clinical affiliate will be allowed to complete their rotation. The request

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for termination from the MLS program would take effect at the conclusion of the academic year. This policy has been signed by all clinical affiliates.

ADVISING

Student advising and guidance through the MLS program will take place at least quarterly with the Program director. The Program director maintains an open door policy but if preferred, please contact for an appointment. Please let the Program director know if you are having difficulty arranging an appointment with a faculty member. The Program director and faculty will advise the students while maintaining confidentiality and impartiality.

GENERAL PROGRAM OBJECTIVES

The following are expected intellectual outcomes, skills, and behaviors of the Medical laboratory science Student. The taxonomic level within each domain follows the objective:

Cognitive Domain

After attending lectures, reading assigned materials, and performing tests in the laboratory, the student will be able to: (Specific criteria listed in each course syllabus.)

1. Recall the basic theoretical concepts related to clinical discipline. LEVEL I
2. Recall terminology associated with clinical discipline and normal values. LEVEL I
3. Recall principle of operation of laboratory instruments. LEVEL I
4. Differentiate human anatomy and physiology, as it relates to discipline, in both health and disease. LEVEL II
5. Analyze the underlying theory of procedures performed in the laboratory, including general description of analyte, clinical significance of analyte, methodology of procedure, and conditions for false negatives and positives. LEVEL II
6. Apply knowledge of normal laboratory data to differentiate between normal and abnormal values and specimens. LEVEL II
7. Interpret laboratory results using guidelines of methodology and procedure. LEVEL II
8. Compare alternate methodologies. LEVEL II
9. Correlate basic laboratory procedures to identification of pathologic states. LEVEL III
10. Integrate data from multiple analyses/laboratories to determine probable diagnosis of patient. LEVEL III
11. Assess data for possible discrepancies and resolve problems considering the patient's condition. LEVEL III
12. Evaluate new methodology and instrumentation through application of basic scientific principles, accepted laboratory techniques, cost analysis, and other management principles. LEVEL III

Psychomotor Domain

After attending lectures, reading assigned materials, and performing tests in the laboratory, the student will be able to: (Specific criteria listed in each course syllabus.)

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1. Recognize acceptable, sub-optimal, unacceptable specimens according to Standard Operating Procedure of the laboratory area in which they are working. LEVEL I
2. Process specimens as instructed. LEVEL II
3. Select appropriate procedure, reagents, and controls for test requested. LEVEL I
4. Perform, as demonstrated, manual and automated procedures, including operating, maintaining, and calibrating instruments and preparing/changing reagents. LEVEL II
5. Identify sources of error and interference in analysis. LEVEL I
6. Record QC and/or patient results according to instruction and in a neat and orderly manner. LEVEL II
7. Perform Quality Control and evaluate acceptability. LEVEL II
8. Troubleshoot procedure or instrument when QC is out of range or when results do not correlate with patient's clinical condition. LEVEL III
9. Correct errors in a timely fashion. LEVEL III

Affective Domain

While completing each laboratory rotation, the student will: (Criteria are listed with each objective.)

1. Receive assignments given in the laboratory. LEVEL I
 - a. Listen attentively to explanation of procedure.
 - b. Observe demonstrations of techniques.
 - c. Accept constructive criticism willingly.
2. Respond positively to individuals who have teaching and supervisory responsibilities. LEVEL I
 - a. Cooperate with instructor/supervisor in lab assignment.
 - b. Communicate effectively with assigned instructors and supervisors regarding laboratory rotation and testing assignments.
 - c. Ask for clarification when a principle or procedure is not clear.
3. Demonstrate compliance with and commitment to laboratory rules and practice. LEVEL I
 - a. Conform to lab schedule in regard to starting/finishing/lunch/break time.
 - b. Complies with lab safety policies and procedures when handling specimens, reagents, and when operating instruments.
 - c. Notifies supervisor of any lab accident should it occur.
4. Value accuracy as being critically important in the provision of patient care. LEVEL II
 - a. Follows laboratory procedures for accession, identification, transport, storage and disposal of specimens.
 - b. Complete appropriate instrument maintenance and procedure QC before initiating patient testing.
 - c. Monitor normal ranges and critical values.
 - d. Seek consultation in a timely manner when results are questionable.
5. Endorse dependability as a work value in assignments. LEVEL II
 - a. Notify Education Coordinator when circumstances cause lateness or absence.
 - b. Plan all scheduled absences in advance and with regard to lab requirements.
 - c. Complete all assigned laboratory tasks (procedures, unknowns, written and practical exams) according to lab requirements.

6. Maintain effective and positive interpersonal relationships. LEVEL II
 - a. Communicate effectively in telephone and personal contacts with other health professionals.
 - b. Respect role and responsibilities of others in allied health profession.
 - c. Interact in a friendly, cooperative, professional manner with peers and instructors.
 - d. Strive to resolve any problem that may arise by discussing problem with respective peer or instructor before going to persons not directly involved.
 - e. Represent the laboratory favorably to other departments and to the public.
7. Establish good work habits. LEVEL III
 - a. Organize work for an efficient flow of specimen testing.
 - b. Manage reagents, supplies, and equipment.
 - c. Strive to leave work area in clean and safe condition.
8. Persist in self-motivation toward learning. LEVEL III
 - a. Initiate assigned tasks without prompting.
 - b. Strive to resolve sources of error or discrepancies caused by suboptimal specimens or interfering substances without prompting.
 - c. Strive to resolve out-of-range QC without prompting.
 - d. Endeavor to function independently as skills develop on rotational assignment.
 - e. Ask for additional information about a given test or assignment.
 - f. Read current literature to enhance knowledge

Cognitive objectives are measured by written examinations in both lecture and laboratory. Laboratory may include completion of worksheets or workbook.

Psychomotor objectives are measured by practical examinations in the laboratory. Checklist evaluation may be used if appropriate.

Affective objectives are measured by a checklist evaluation in the laboratory.

Department of Labor MLS program modules

<https://www.alliedhealth.umn.edu/medical-laboratory-sciences-mls/about-mls-profession/explore-practice-areas>

What to Expect During Your Clinical Laboratory Experience