



Mass General Brigham

Medical Laboratory Science Program



Student Handbook

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PROGRAM OVERVIEW

Mass General Brigham Healthcare System - Institution Description

[Mass General Brigham](#) is a not-for-profit, integrated health care system in Boston, Massachusetts. Founded by Brigham and Women’s Hospital and Massachusetts General Hospital—two of the nation’s leading academic medical centers—Mass General Brigham includes community and specialty hospitals, a managed care organization, a physician network, community health centers, home care, and other health-related services.

Mass General Brigham is committed to the community, and dedicated to enhancing patient care, teaching, and research in service to our patients and their families.

Mass General Brigham is the largest private employer in Massachusetts, with approximately 74,000 employees, including physicians, nurses, scientists, and caregivers. Mass General Brigham institutions maintain a total research budget of more than \$1.7 billion, and Massachusetts General Hospital (MGH) and Brigham and Women’s Hospital (BWH) are the largest private hospital recipients of National Institutes of Health funding in the nation.

Mass General Brigham offers one of the most robust and competitive medical educational programs in the country, with more than 200 residency and fellowship programs, where physicians-in-training routinely rotate among academic medical centers, community, and specialty hospitals.

Non-Discriminatory Policy

Mass General Brigham complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, citizenship, alienage, religion, creed, sex, sexual orientation, gender identity, age, or disability. Mass General Brigham does not exclude people or treat them differently because of race, color, national origin, citizenship, alienage, religion, creed, sex, sexual orientation, gender identity, age, or disability.

Medical Laboratory Science Program Overview

The Mass General Brigham Medical Laboratory Science (MLS) Training Program is designed to prepare students for a career in the dynamic and ever-evolving field of laboratory medicine.

The MGB MLS program trains future laboratory scientists through a rigorous and integrated curriculum, including hands-on didactic instruction, on-site clinical experiences, and online learning. As a student in the program, you will train under highly experienced laboratory professionals employed by Mass General Brigham Clinical Laboratories.

Students will develop the technical and critical thinking skills required to safely and accurately perform complex laboratory testing applying sophisticated methodology and instrumentation used to detect, diagnose, and monitor human disease. Students will also be trained in facets of laboratory operations, including management and quality assurance of laboratory services for all major disciplines in a contemporary clinical laboratory. Upon completion of the program, students will be eligible to sit for the national certification exam offered by the American Society for Clinical Pathology to become a certified laboratory scientist.

Graduates of our program will have the competency and experience to perform, develop, evaluate, correlate, and assess the quality and validity of laboratory results, in addition to the ability to lead, troubleshoot, and problem solve in collaboration with members of the health care team.

The MLS training program is an excellent opportunity to train at one of the nation's most prestigious teaching institutions. The Mass General Brigham MLS training program is focused on building the Mass General Brigham system laboratory workforce, with a variety of laboratory career opportunities available at MGB Members and Affiliates upon graduation.

Location

MGB MLS Training Laboratory

221 Longwood Avenue, EBRC – 420 & 421

Boston MA, 02115

Phone: 617-320-9664 | [MGB MLS Website](#)

Accreditation Statement

The MGB MLS Program has achieved Serious Applicant Status through the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

NAACLS

5600 N. River Rd., Suite 720

Rosemont, IL 60018-5119

Phone: (773) 714-8880 | Fax: (773) 714-8886 | Website: www.naacls.org | Email: NAACLS@naacls.org

Refer to appendix F for NAACLS Serious Applicant Status Award.

Program Mission Statement

The mission of the Mass General Brigham MLS training program is to provide high-quality theoretical and clinical education to prepare future medical laboratory scientists with the skills, knowledge, and values required of the profession. Training will emphasize professional and ethical behavior needed to function in the clinical laboratory and to become a vital member of a health care team.

Program Vision Statement

The vision of the Mass General Brigham MLS training program is to sustain a well-trained competent workforce dedicated to excellence in the practice of laboratory medicine and committed to patient care.

Program Goals

The education goals of the MLS Program reflect Mass General Brigham's commitment to education by training, teaching, and educating the next generation of health care professionals.

The goals of the MGB MLS Program are as follows:

- Provide high-quality instruction in all major laboratory disciplines relevant to the practice of medical laboratory science
- Prepare students with the technical skills and theoretical knowledge necessary to function competently in the field of medical laboratory science
- Provide an educational environment that fosters curiosity, critical thinking, and academic growth
- Develop a foundational knowledge of laboratory-related quality control, and foster an appreciation for quality assurance and improvement initiatives impacting daily laboratory operations
- Promote ethical behavior as a foundation for leadership and education
- Encourage professional curiosity and instill the value of continuing education for the growth and maintenance of professional competence
- Prepare students to contribute to an interprofessional healthcare team by working collaboratively with other healthcare professionals to improve patient safety and provide patient-centered care
- Provide an atmosphere that promotes polite and professional communication between colleagues, patients, and all members of the healthcare team
- Prepare graduates to task-switch effectively to meet the demands of typical workforce conditions and provide simulated and real-world experiences that enhance their ability to work under pressure safely and effectively
- Prepare medical laboratory science graduates for entry-level positions in the workforce
- Provide our community with highly skilled, competent, professional, and ethical medical laboratory scientists

MLS Entry Level Competencies (NAACLS)

At entry-level, the medical laboratory scientist will possess the entry level competencies necessary to perform the full range of clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology/Transfusion Medicine, Microbiology, Urine and Body Fluid Analysis and Laboratory Operations, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory scientist will have diverse responsibilities in areas of analysis and clinical decision-making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed, or performed.

At entry level, the medical laboratory scientist will have the following basic knowledge and skills in:

1. Application of safety and governmental regulations and standards as applied to clinical laboratory science;
2. Principles and practices of professional conduct and the significance of continuing professional development;
3. Communications sufficient to serve the needs of patients, the public and members of the health care team;
4. Principles and practices of administration and supervision as applied to clinical laboratory science;
5. Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services;
6. Principles and practices of clinical study design, implementation, and dissemination of results.

Adapted from the [National Accrediting Agency for Clinical Laboratory Sciences \(NAACLS\) Standards for Accredited and Approved Programs \(06/2022\)](#)

Technical Standards

Technical standards (essential functions) refer to a candidate's physical, cognitive, and behavioral attributes. Technical standards for the Mass General Brigham MLS training program have been developed in compliance with the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

Physical Considerations

Vision

Students should:

- be able to use a microscope
- distinguish colors
- read instrument panels
- interpret charts and graphs

Hearing and Communication

Students should:

- be able to communicate effectively in English, in both speaking and writing

Fine and Gross Motor Skills

Students should:

- be able to operate equipment, microscopes, pipettes, needles, and syringes
- be able to maintain sitting or standing for long periods
- move freely in the lab

Cognitive Considerations

Comprehension

Students should be able to comprehend, calculate, reason, analyze, synthesize, integrate, and apply knowledge.

Critical Thinking Skills

Students should:

- be able to reason and make complex decisions
- be able to perform complex interpretative testing
- be able to exercise sufficient judgment to recognize errors

Behavioral Considerations

Students should:

- be able to organize work and manage time efficiently
- be flexible and able to adapt to change
- be committed to following established safety procedures
- be able to adapt to working with blood, urine, feces, and other body fluids
- be supportive of peers and all members of the healthcare team
- be honest and forthright about errors
- be compassionate and ethical

MGB MLS Program Code of Ethics

The MGB MLS Training Program adheres to the [ASCP Board of Certification Guidelines for Ethical Behavior](#). This describes the ethical and professional obligations expected of the profession.

Professionalism and ethical standards:

- Treat patients with respect, care, and thoughtfulness.
- Develop cooperative and respectful relationships with colleagues to ensure a high standard of patient care.
- Perform my duties in an accurate, precise, timely, and responsible manner.
- Safeguard patient information and test results as confidential, except as required by law.
- Advocate the delivery of quality laboratory services in a cost-effective manner.
- Strive to maintain a reputation of honesty, integrity, and reliability.
- Comply with laws and regulations and strive to disclose illegal or improper behavior to the appropriate authorities.
- Continue to study, apply, and advance medical laboratory knowledge and skills; and share such with other members of the health care community and the public.
- Render quality services and care regardless of patients' age, gender, race, religion, national origin, disability, marital status, sexual orientation, political, social, health, or economic status.

ASCLS Pledge to the Profession

As a clinical laboratory professional, I strive to:

- Maintain and promote standards of excellence in performing and advancing the art and science of my profession.
- Preserve the dignity and privacy of others.
- Uphold and maintain the dignity and respect of our profession.
- Seek to establish cooperative and respectful working relationships with other health professionals.
- Contribute to the general well-being of the community.

I will actively demonstrate my commitment to these responsibilities throughout my professional life.

Adapted from [ASCLS Pledge to the Profession](#)

[ASCLS Code of Ethics](#)

The Code of Ethics of the American Society for Clinical Laboratory Science sets forth the principles and standards by which clinical laboratory professionals practice their profession. All students should be familiar with the ASCLS Code of Ethics.

Duty to the Patient

Clinical laboratory professionals are accountable for the quality and integrity of the laboratory services they provide. This obligation includes maintaining individual competence in judgment and performance and striving to safeguard the patient from incompetent or illegal practice by others.

Clinical laboratory professionals maintain high standards of practice. They exercise sound judgment in establishing, performing, and evaluating laboratory testing.

Clinical laboratory professionals maintain strict confidentiality of patient information and test results. They safeguard the dignity and privacy of patients and provide accurate information to other health care professionals about the services they provide.

Duty to Colleagues and the Profession

Clinical laboratory professionals uphold and maintain the dignity and respect of our profession and strive to maintain a reputation of honesty, integrity, and reliability. They contribute to the advancement of the profession by improving the body of knowledge, adopting scientific advances that benefit the patient, maintaining high standards of practice and education, and seeking fair socioeconomic working conditions for members of the profession.

Clinical laboratory professionals actively strive to establish cooperative and respectful working relationships with other health care professionals with the primary objective of ensuring a high standard of care for the patients they serve.

Duty to Society

As practitioners of an autonomous profession, clinical laboratory professionals have the responsibility to contribute from their sphere of professional competence to the general well-being of the community.

Clinical laboratory professionals comply with relevant laws and regulations pertaining to the practice of clinical laboratory science and actively seek, within the dictates of their consciences, to change those which do not meet the high standards of care and practice to which the profession is committed.

Adapted from [ASCLS Code of Ethics](#)

APPLICATION & ADMISSIONS

The MGB MLS Program eligibility requirements, application, selection and admissions process are readily available to all interested applicants on the [MGB MLS Program Website](#).

Application Process

Individuals must meet both the academic requirements and technical standards to be eligible to apply.

To apply, students must complete an online application form, which gathers basic demographic information and requires the following supporting documentation:

- **Current *curriculum vitae* or resume:** A concise summary of all academic, professional, and personal (where relevant) achievements and skills
- **Personal Statement:** A short essay that articulates your educational and professional goals. It should include your background and past experiences that relate to the program and your desire to become a Medical Laboratory Scientist. The personal statement should be typed using legible 12-point font and be no more than 500 words (1 page single-spaced or 2 pages double-spaced).
- **Two Professional References:** Professional references should be from a recent employer or academic institution and must be able to speak to your academic abilities, work ethic, and potential for success in an accelerated, health science-based program.

It is important that at least one of the professional references is from a current or former manager, supervisor, academic advisor, or professor whom you directly reported to. This individual should be able to provide detailed insights into your skills and abilities, including aspects such as your work performance, attendance, role instructions, direction, and day-to-day tasks. Their firsthand knowledge of your work and their ability to provide specific examples will greatly enhance the credibility of your application.

References will be contacted via email to complete an online evaluation form. As part of the online application, you are required to input contact information and email addresses for your references. References will only be contacted following interview with the Admissions Committee.

Official transcripts must be requested from each institution attended. Transcripts must be sent directly from the institution (not the applicant) to the program.

Selection Process

An admissions committee comprised of the MGB MLS program faculty will evaluate all applications after the application deadline has closed.

- Each application package is carefully reviewed by the admissions committee.
- Individuals meeting the minimum eligibility criteria will be considered.
- Qualified candidates will be invited to interview with the admissions committee. The interview process consists of a behavioral-style panel interview.
- Interviewed candidates will be evaluated and scored using a rubric based on academic qualifications and nonacademic characteristics gathered from the application, interview, and references.
- Candidates will be notified of selection 2 weeks following their interview.

Accepted applicants will receive an official letter notifying them of the admissions committee decision. Once the applicant confirms acceptance to the program, they will receive on-boarding package including additional on-boarding requirements.

Academic Requirements

The MGB MLS program is a post-baccalaureate (4+1) certificate program. Students must meet the following criteria to be eligible for acceptance to the program:

1. Baccalaureate degree from an accredited college or university meeting either A or B:

- A. Bachelor of Science degree in biological science or chemistry, including the required prerequisite coursework
- B. Other major with 30 semester hours (45 quarter hours) in biology and chemistry, including the required prerequisite coursework

*Degrees granted by foreign universities must have transcripts evaluated by an ASCP-approved agency *prior* to application – [ASCP Evaluation Agencies for Foreign Transcripts](#)

2. Cumulative and pre-requisite course GPA of ≥ 2.750 (4.000 scale)

3. Completion of the prerequisite coursework. The following prerequisite coursework may be obtained within, or in addition to, the baccalaureate degree:

Biological Sciences: A minimum of 16 credit hours (24 quarter hours)

- Human Physiology I & II (laboratory strongly recommended)
- Microbiology with laboratory

Chemistry: A minimum of 16 semester hours (24 quarter hours) including

- Organic Chemistry with Laboratory

Math: At least one of the following college-level mathematics courses

- Algebra, Pre-calculus, Calculus, and/or Statistics

4. Meet the MGB MLS Program technical standards

HEALTH & SAFETY COMPLIANCE

Health Requirements

All students must meet the BWH Infection Control Standards for Health Clearance outlined below. Detailed instructions for completing the health clearance process are provided to all accepted students.

Tuberculosis Screening and Chest X-Rays

One of the following is required:

- a. Documentation of a TST (skin test) within 3 months
- b. Documentation of a negative IGRA (QFT or T-Spot) within 3 months
- c. For individuals known to be TB skin test positive or who have positive IGRA, documentation of a chest X-ray report which rules out active tuberculosis is required.
 - Provide documentation of any treatment for Latent TB.

Proof of Measles, Mumps, and Rubella Immunity

One of the following is required:

- a. Documentation of two measles vaccines, two mumps vaccine, and one rubella vaccine or documentation of two MMR vaccines
- b. Proof of immunity to measles, mumps and rubella by IgG antibody titer (blood test).

Proof of Varicella (Chickenpox) Immunity

One of the following:

- a. Proof of immunity to chicken pox by IgG antibody titer (blood test)
- b. Documentation of two varicella vaccinations
- c. Reliable history of chicken pox disease

Hepatitis B Vaccine

Provide both of the following documents:

- a. Documentation of the hepatitis B series
- b. Positive antibody test for hepatitis B (anti-HBsAg).

Tdap/Td

Tdap immunization within the past 10 years.

Influenza

Documentation of current flu vaccination with manufacturer and lot number.

COVID-19 Vaccine Series

Documentation of full vaccination to COVID-19 with manufacturer(s) and lot number. Acceptable initial doses include one of the following:

- Two (2) Moderna doses (28-day interval between doses)
- Two (2) Pfizer doses (21-day interval between doses)
- One (1) Johnson & Johnson and dose

Professional Requirements

All students must provide current documentation for each of the following professional requirements listed below.

- **ID Badge Forms:** Each student is required to complete both the Brigham and Women's Hospital POI form and Harvard POI form prior to enrollment.
(Although this is a Mass General Brigham systemwide program, the MGB MLS program is located on the Brigham and Women's campus and therefore, students and instructors must comply with their rules and regulations)
- **ID Badge Photo:** Each student is required to submit a personal photograph in accordance with the recommendations set out by the ID badge request form.
- **Criminal Background Check:** students must complete and pass both Massachusetts and National criminal background checks.
- **Government Issued ID:** students must provide a scanned copy of a government issued ID (license or passport). An ID is required to submit the CORI and ID badge forms.
- **Health Insurance:** Evidence of medical insurance coverage must be provided to ensure that emergent situations that require an emergency room visit can be covered for the student.
- **Liability Insurance:** Each student is required to purchase liability insurance which meets the requirements of the hospital and clinical affiliates. Proof of insurance must be provided to the Program Director. Students will be provided with information to purchase the insurance for the provider utilized by the MGB MLS program.

Safety & Compliance Training

All students will be provided with in-person laboratory safety training and a laboratory safety manual at the beginning of the program. Students are required to adhere to all standard safety policies and procedures. The laboratory safety training comprises the following:

1. MGB MLS Lab-Specific Training
2. OSHA Compliance & Lab Safety Training Modules (MediaLab)
 - Bloodborne Pathogens
 - Electrical Safety
 - Fire Safety
 - Hazard Communication & Chemical Hygiene
 - Personal Protective Equipment
3. HIPAA Training (MediaLab)
4. Ethics & Code of Conduct Training (MediaLab)

**Students will be required to upload their lab safety & compliance training certificates to Typhon.*

All students will be provided with the personal protective equipment (lab coat, gloves, eye protection, gloves) while in the program.

Typhon

The MLS Training Program and clinical affiliates will use Typhon to document compliance with health and professional requirements. Typhon is a secure, cloud-based platform used by Allied health programs. Students will use Typhon to upload health and professional requirements, in addition to document program-specific competencies and assessments. Students will be provided with a detailed on-boarding guide upon acceptance to the program.

Tuition & Fees

Tuition for the MLS Program will be established on an annual basis by the program director and laboratory service executives. Students will be responsible for paying all tuition and fees, including those required for pre-health requirements, educational supplies, scrubs, and other materials.

Upon acceptance to the program, a non-refundable deposit of \$100 is required from all students. This payment is used to open a student profile in the MGB MLS Typhon program. Students will be required to upload all health and other professional requirements to their profile and will utilize various functions within the program.

Tuition for the MGB MLS program \$5,500. Payment is to be made by check directly to the Mass General Brigham Medical Laboratory Science program due one month prior to the program start date.

Students will incur additional costs in the form of textbooks and travel. Estimated additional costs are listed below.

| | | |
|---|----------------|---|
| Acceptance Fee | \$100 | Students will secure their acceptance to the program by paying for their Typhon membership. Enrollment due 2 weeks after date of acceptance letter. This is non-refundable. |
| Program Tuition | \$5,500 | Checks made payable to MGB MLS Training Program are due 1 month prior to the program start date. Tuition is non-refundable after the start of the program. |
| Textbooks & Educational Supplies | \$600 | Estimated cost based on current textbook pricing. |
| Transportation & Parking | Variable | Vary based on mode of transportation and clinical site |
| Estimate Cost of 10-Month Program | \$6,200 | |

IMPORTANT: Students should budget for costs associated with travel and living expenses. These include parking, gas, public transportation, housing, meals, etc.

MGB MLS TRAINING PROGRAM

Curriculum Overview

The MGB MLS Program is a 10-month training program designed to offer students high-quality laboratory science education and hands-on training. The MLS training program trains future laboratory scientists through a rigorous and integrated curriculum, including hands-on didactic instruction, on-site clinical experiences, and online learning.

The curriculum was developed in alignment with the ASCLS Entry Level Curriculum, Body of Knowledge, and ASCP guidelines with the assistance of discipline-specific curriculum committees comprised of MGB clinical laboratory staff.

The program is split into two training blocks – didactic training block and clinical training block.

Didactic Training Block (6 Months)

For the first six months, students will learn the fundamentals of medical laboratory science with lectures and hands-on laboratory experiences in each of the major laboratory disciplines. The didactic component of the MLS program has been split into major and minor coursework. Major courses include Clinical Chemistry, Hematology, Immunohematology, and Microbiology. Minor courses include Introduction to Medical Laboratory Science & Laboratory Practice, Clinical Immunology & Serology, Molecular Diagnostics, Urinalysis and Body Fluids, and Lab Management & Quality. All courses, except for Lab Management & Quality, will include both in-person lecture and laboratory sessions.

The didactic component of the program is presented with an integrative curriculum, with students taking two major courses simultaneously. The courses are mapped in a logical sequence to equip students with the prerequisite knowledge needed to foster connections among each of the laboratory disciplines in our 6-month program. All didactic courses are graded using a common grading scale. Students must pass each didactic course with a C (72.5%) or higher to progress to the clinical training block of the curriculum.

Clinical Training Block (4 Months)

The clinical training block is comprised of four months of clinical rotations. Students will complete rotations in each of the major laboratory disciplines – chemistry, hematology & coagulation, immunohematology, microbiology, and urinalysis. Students will be required to meet specific competencies while on each rotation.

Program Schedule & Hours of Attendance

The MGB MLS program is a 10-month, full-time, in-person program. The didactic training block runs Monday through Friday from 9:00 AM to 4:00 PM. While in the clinical training block, students will report to the MGB clinical affiliate for 8 hours, with start times varying from site to site. Students are expected to be present in-person (unless otherwise specified) at the assigned times. Students will be off on major and minor holidays recognized by the MGB system.

Course Descriptions

MLS.4000 Introduction to Medical Laboratory Science & Laboratory Practice

The course will serve as an introduction to basic clinical laboratory practices and techniques, including principles of laboratory safety, patient confidentiality, specimen collection, handling, and processing, and control of pre- and post-analytic variables. Basic laboratory math concepts and professional ethics will follow. Laboratory exercises will focus on microscopy, pipetting, and solution preparation.

MLS.4100 Clinical Immunology & Serology

Basic immunological techniques will be explored in this course which introduces the fundamental concepts of immunology, focusing on the molecules, cells, and tissues associated with the recognition of substances that can elicit an immune response, the various mechanisms via which immune responses are initiated and executed upon recognition of these substances, and the biochemical and physiological regulatory pathways of immune responses. The applications of immunological principles will be explored through serological methods and antigen-antibody reactions. Serological methods will be elucidated for the diagnosis of infectious and autoimmune conditions and disease.

MLS.4120 Molecular Diagnostics

Topics in molecular diagnostics will be discussed in this course by providing an overview of molecular biology and the clinical application of molecular techniques used to diagnose and manage human disease. Techniques discussed include specimen collection and handling, DNA purification, direct and amplified nucleic acid testing, Southern blot analysis, in addition to semiautomated and automated methods. Students will perform hands on laboratory activities in addition to interpretation of clinical data.

MLS.4130 Laboratory Management & Quality

This course will acquaint the student with the many managerial, educational, technical, and administrative theories and practices, as well as moral and ethical issues that may confront the health care professional functioning within a clinical or research laboratory setting. The course will also delve into the topics of total quality management and the processes and responsibilities associated with it.

MLS.4200 Clinical Hematology

This course will introduce the study of normal and pathologic hematology, with emphasis on hematopoiesis, cellular components, and morphology as it relates to the field of medical laboratory science. Topics include the diagnosis and management of blood cell disorders, the analysis, classification, and monitoring of blood cell abnormalities, and routine and specialized hematology and coagulation testing. In addition, the evaluation of cerebrospinal, serous, and synovial fluids will be discussed. The laboratory portion of the course focuses on routine hematology procedures, including cell enumeration, cell identification, and recognition of abnormalities in both blood and bodily fluids.

MLS.4300 Clinical Chemistry

This course will cover clinically significant lipids, proteins, heme derivatives, hormones, carbohydrate, acid-base balance, and electrolytes. Endocrinology, vitamins, nutrition, therapeutic drug monitoring and toxicology will be included. Principles of test methodology and automation will be covered. Correlation of clinical laboratory data with the diagnosis and treatment of disorders is introduced. Laboratory exercises will reinforce lectures.

MLS.4310 Urinalysis & Body Fluids

This course explores the analysis and interpretation of urine and various body fluids. Through a combination of lectures and practical laboratory exercises, students will develop a thorough understanding of the principles and. The course covers a wide range of topics, including the anatomy and physiology of the renal system, the formation and composition of urine, the identification and significance of normal and abnormal constituents, and the microscopic examination of urinary sediment. Additionally, students will gain practical experience in handling and analyzing other body fluids such as cerebrospinal fluid, pleural fluid, synovial fluid, and peritoneal fluid. With a focus on quality control, safety protocols, and the use of advanced laboratory instruments, students will be equipped with the skills to accurately interpret test results, troubleshoot technical issues, and effectively communicate findings to healthcare professionals.

MLS.4400 Clinical Microbiology I

This course consists of instruction in the basic principles and diagnostic test methods of Clinical Microbiology with a focus on bacteriology. The clinical significance of commonly isolated pathogenic and non-pathogenic bacteria will be covered in detail, along with the laboratory procedures required for routine identification and antimicrobial susceptibility testing of these organisms.

MLS.4410 Clinical Microbiology II

This course consists of instruction in the basic principles and diagnostic test methods of Clinical Microbiology with a focus on mycology, parasitology, and virology. The student will be introduced to the taxonomy, life cycles, clinical significance, and laboratory identification of pathogenic and non-pathogenic fungi and parasites. Virus structure and the association between viruses and clinical disease will also be discussed.

MLS.4500 Clinical Immunohematology

This course explores the principals, techniques, and clinical significance of major blood group antigens and antibodies. Topics will include compatibility testing, antibody screening and identification techniques, blood donation and donor selection, transfusion therapy, record keeping, and quality control. The laboratory portion of the course is designed to provide the student with practical experience with foundational laboratory techniques used in the blood bank. The lab will reinforce lecture concepts, including ABO and Rh typing, identification of other red cell antigens, antibody screening and identification, direct antiglobulin testing, cross-matching, and other advanced techniques.

MLS.4600 Clinical Practicum I: Clinical Hematology & Hemostasis

This course consists of supervised clinical training in the hematology department at an affiliated laboratory. Students will rotate through the core hematology laboratory, including hemostasis. Students will participate and gain hands-on experience with hematology and coagulation instrumentation, quality control, instrument maintenance and operation, result interpretation, critical value reporting, and applying troubleshooting skills to different lab situations.

MLS.4610 Clinical Practicum II: Clinical Chemistry & Urinalysis

This course consists of supervised clinical training in the chemistry and urinalysis departments at an affiliated laboratory. Students will rotate through various benches in the core chemistry lab (elective specific chemistry lab if available) and urinalysis. Students will participate and gain hands-on experience with multiple clinical chemistry instruments and methodologies, quality control, instrument maintenance and operation, result interpretation, critical value reporting, and application of troubleshooting skills.

MLS.4620 Clinical Practicum III: Immunohematology

This course consists of supervised clinical training in the immunohematology department at an affiliated laboratory. Students will rotate through various benches in the assigned blood bank department. Students will participate and gain hands-on experience with various techniques used in the blood bank to identify antibody/antigen interactions, interpret serologic and clinical data used in the procurement, selection, and preparation of safe blood products for transfusion.

MLS.4630 Clinical Practicum IV: Clinical Microbiology

This course consists of supervised clinical training in the microbiology department at an affiliated laboratory. Students will rotate through the various benches of the bacteriology laboratory. Students will participate and gain experience in performing methods used to isolate and identify clinically significant bacteria, in addition to susceptibility testing. Students will also rotate through either the TB, mycology, parasitology, or virology laboratory.

Course Textbook Recommendations

| Course Code | Course Name | Recommended Text |
|----------------------|--|--|
| MLS.4000 | Introduction to Medical Laboratory Science & Laboratory Practice | Fundamentals Laboratory Mathematics: Required Calculations for the Medical Laboratory Professional <i>Buckingham, Lela. (2019). (1st ed.). Philadelphia: F.A. Davis Company.</i> Blood Collection for Healthcare Professionals <i>Di Lorenzo M.S. & Strasinger, S. K. (2022). (4th ed.). F. A. Davis Company.</i> |
| MLS.4100 | Clinical Immunology & Serology | Clinical Immunology & Serology: A Laboratory Perspective <i>Miller, L. E. & Stevens, C. D. (2021). (5th ed.). Philadelphia: F. A. Davis Company</i> |
| MLS.4120 | Molecular Diagnostics | Molecular Diagnostics: Fundamentals, Methods, & Clinical Applications <i>Buckingham, Lela. (2019). (3rd ed.). Philadelphia: F.A. Davis Company.</i> |
| MLS.4130 | Laboratory Management & Quality | Laboratory Management Principles and Processes <i>Harmening, D. M. (2020). (4th ed.). St. Petersburg: D. H. Publishing & Consulting Inc.</i> |
| MLS.4200 | Clinical Hematology | Clinical Hematology & Fundamentals of Hemostasis <i>Harmening, D.M. (2009). (5th ed.). F.A. Davis.</i> Clinical Hematology Atlas <i>Rodak, B. F. & Carr, J. H. (2016). (5th ed.). Philadelphia: Elsevier Saunders.</i> |
| MLS.4300 | Clinical Chemistry | Tietz Fundamentals of Clinical Chemistry & Molecular Diagnostics <i>Rifai, N. et al. (2019). (8th ed). Philadelphia. Elsevier Saunders.</i> Clinical Chemistry: Principles, Techniques, and Correlations <i>Bishop, M.L., et al. (2022). (9th ed.). Burlington, MA: Jones & Bartlett Learning.</i> |
| MLS.4310 | Urinalysis & Body Fluids | Urinalysis and Body Fluids <i>Strasinger S. K. & Di Lorenzo M. S. (2021). (7th ed.). F. A. Davis Company.</i> |
| MLS.4400 MLS.4410 | Clinical Microbiology I & II | Bailey & Scott's Diagnostic Microbiology <i>Tille, P.M. (2021). (15th ed.). Elsevier.</i> |
| MLS.4500 | Clinical Immunohematology | Modern Blood Banking and Transfusion Practices <i>Harmening, D.M. (2018). (7th ed.). Philadelphia: F.A. Davis Company.</i> |

MGB MLS Program Faculty & Staff

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MLS Training Program Director

Curriculum Lead: Hematology & Microbiology I & II

Nicolas Troisi, M.S., MLS(ASCP)^{CM}

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Microbiology Instructor

Colby Alves, B.A., MLS(ASCP)^{CM}

MLS Training Program Laboratory Coordinator

Abigail Auger, B.S., MLS(ASCP)^{CM}

MLS Training Program Laboratory Instructor

MGB Clinical Laboratory Medical Directors, Supervisors, and Senior Techs, in addition to Brigham & Women's and Mass General Hospital Clinical Pathology residents will provide supplemental lectures in their area of expertise.

Clinical Training Block

Students will be assigned to a single clinical affiliate for their rotation by the MLS Program Director and Clinical Coordinator.

The following rules apply to all students:

1. Students will be assigned to a clinical affiliate 1-month prior to the start of the clinical training block.
2. Clinical assignments will be distributed via Typhon, which will include clinical site and instructors.
3. Some clinical sites may require additional on-boarding documentation. It is the student's responsibility to review this information in Typhon and complete prior to their start date.
4. Students are responsible for transportation to and from the clinical assignment and parking.
5. Students must follow all rules and regulations outlined by the clinical affiliate.
6. Clinical rotations are graded courses. Students will be responsible for completing competencies, assignments, and exams. A cumulative discipline-specific exam will be administered at the end of each major rotation.

Each clinical affiliate will have different policies for the on-boarding processes of student interns. In most cases, students will be required to release their health records to clinical affiliates. With permission from the student, the Program Director and/or Clinical Coordinator will securely transfer health records to the clinical affiliate.

Clinical Affiliate List

The MGB MLS Program is affiliated with the following hospital clinical laboratories in the MGB system:

Brigham & Women's Hospital
75 Francis St. Boston, MA 02115

Massachusetts General Hospital
55 Fruit St, Boston, MA 02114

Brigham & Women's Faulkner Hospital
1153 Centre St, Jamaica Plain, MA 02130

Newton Wellesley Hospital
2014 Washington St, Newton, MA 02462

Cooley Dickinson Hospital
30 Locust St, Northampton, MA 01060

Wentworth Douglass Hospital
789 Central Ave, Dover, NH 03820

Salem Hospital
81 Highland Ave, Salem, MA 01970

Harbor Medical Associates
541 Main St, Suite 114, South Weymouth, MA 02190

Credit for Previous Lab Experience

Accepted students with previous clinical laboratory experience may be able to petition out of the one (1) clinical rotation during the clinical training block. Students cannot petition out of didactic courses.

To petition out of a clinical, students must either meet A *or* B:

- A. Have completed academic course work through a NAACLS accredited MLT program *and* hold a current MLT(ASCP) certification.
- B. Worked in the corresponding clinical laboratory department for at least one (1) year *and* have completed all training and competencies for each major bench within the department according to the ASCP Experience Documentation (Routes 2 & 4).

A Clinical Petition Form must be completed by the student and submitted to the program director at least two (2) months prior to the clinical training block. Students may be required to submit additional documentation to finalize the clinical petition.

Facility & Resources

The MGB MLS training laboratory occupies 900 square feet at 221 Longwood Ave. Boston, MA at the Brigham and Women's Hospital campus. Separate conference rooms are used for lectures and group work. Both the training laboratory and conference room spaces are equipped with SmartRoom technology and access to the Internet.

The training lab is equipped an Extron audio-visual (AV) system that allows for projection of instructional materials and teaching microscope. Laboratory equipment was purchased for the training lab to facilitate hands-on instruction.

Online Resources

The MGB MLS program has purchased a variety of technology tools and online resources to facilitate and support instruction. Upon acceptance to the program, each student is assigned to a Dell laptop for use throughout the program while on-site. Students will be provided access to the following web-based resources:

Canvas

All lecture materials (PowerPoints, Quizzes, Assignments, etc.) are uploaded to an online learning management system (LMS) called Canvas. Students will be added to each course as the program progresses.

MediaLab

Each student will be enrolled in 1-year of MediaLab. MediaLab is a web-based clinical laboratory program. Students will have access to a variety of applications including Compliance & CE Courses, Exam Simulators, and Case Simulators. Applications will be assigned to reinforce instruction.

ADLM Learning Lab

Each student will be enrolled in 1-year of ADLM Learning Lab. Learning Lab is a web-based adaptive learning platform. Students will be assigned to specific learning modules to reinforce instruction.

Course Assessments & Examinations

Students will be evaluated frequently during each laboratory course and during the clinical rotations. Evaluations include hands-on lab competency assessments and examinations. Course-specific competency and exam dates will be set and published in the course syllabus. Each exam and competency will have a specific timeframe for which the assessment must be completed. Written exams will be completed online through the course Canvas page or within MediaLab. Lab assessments must be completed in person in the student training lab facility. All lab assessments and exams will be designed to test the material covered in the course-specific objectives. The scheduled dates are to be followed except for rare circumstances when a legitimate conflict arises.

Academic Counseling

Academic counseling is available to all students enrolled in the MGB MLS training program upon request. The Program Director is readily available to confidentially discuss academic progress, learning challenges, grades, or any other academic concerns. Contact the Program Director to make an appointment.

It is the student's responsibility to track their academic progress in each course. Course-specific academic support and tutoring is available upon request to the primary instructor.

Course Grading Policy

Each course, including clinical rotations, will have a syllabus that outlines the course description, learning objectives, expectations, instructional resources, and methods for student evaluation. Students will be provided with the course-specific grading policy and grading rubric.

Each instructor will set specific benchmarks for progression in the course and will evaluate each student at specific intervals with unit-based competency assessments. If an individual is not meeting required benchmarks, a remediation plan will be developed.

All courses will be rounded according to the following criteria: grades that end with 0.49 or less will round down, grades that end in 0.50 or higher will round up. For example, a 92.49 will round down to a 92 while a 92.5 will round up to a 93.

The following grading scale is used across all didactic and clinical rotation coursework:

| Letter Grade | Numerical Grade | GPA | Letter Grade | Numerical Grade | GPA |
|--------------|-----------------|-----|--------------|-----------------|-----|
| A | 93 – 100 | 4.0 | C | 73 – 76 | 2.0 |
| A- | 90 – 92 | 3.7 | C- | 70 – 72 | 1.7 |
| B+ | 87 – 89 | 3.3 | D+ | 67 – 69 | 1.3 |
| B | 83 – 86 | 3.0 | D | 63 – 66 | 1.0 |
| B- | 80 – 82 | 2.7 | D- | 60 – 62 | 0.7 |
| C+ | 77 – 79 | 2.3 | F | < 60 | 0.0 |

A grade of C or higher ($\geq 72.5\%$) is required to successfully pass each course.

Exit Examination

Upon successful completion of both the didactic *and* clinical training blocks, students will be administered a cumulative and comprehensive exit examination.

The exam is an ASCP-BOC style exam consisting of 100 multiple choice questions that must be completed in two-and-a-half-hour timeframe.

Students must receive a 70% or higher to pass the exit exam and graduate. Students are given two (2) opportunities to achieve a passing score. Students must take the repeat exam within seven (7) days of the initial exam.

Certificate of Completion

Certificates of completion will be awarded to students who successfully complete the 10-month training program and pass the exit examination.

**Neither the Certificate of Completion nor didactic coursework can be utilized or transferred as credits to academic institutions at this time.*

Pinning Ceremony

To celebrate the achievement of program completion a pinning ceremony will be held in your honor. Students are welcome to invite guests to this event. The student with the highest-grade point average for MLS course work will have the honor of being the class speaker and guide the class in reciting the ASCLS Pledge to the Profession. This will require a very short speech, 5-10 minutes long, to be presented as part of the ceremony.

Board of Certification Exam

The MGB MLS program is actively seeking NAACLS accreditation. As of March 2023, the program has received *Serious Applicant Status*, allowing students that complete the program to be eligible to sit for the Medical Laboratory Science (MLS) board of certification exam (BOC) through the American Society for Clinical Pathology (ASCP) via Route 1.

Certification is a voluntary process. We encourage all graduates to seek certification within twelve months after graduation. Graduates are responsible for payment of the certification exam application.

Teach Out Plan

The MGB MLS Program guarantees that all students will be able to complete the program. In rare event that the MLS Program is unable to operate or close, the teach out plan is as follows:

1. If closure is due to exceptional or uncontrolled circumstances such as a natural disaster and the hospital plans to reopen within 12 months, the student will rejoin the program and progress as previously planned.
2. If the closure is due to exceptional or uncontrolled circumstances such as a natural disaster and the hospital is to close, every effort will be made to contact MLS programs in the area to request that students be transferred to others.
3. If closure is due to the hospital's decision to no longer offer the program, then all enrolled students will progress as planned and no new students will be accepted into the program.

Student Records

All current student records are stored in the secure, cloud-based Typhon program. Current students have access and the right to review their files at any time. Student records are stored in Typhon until graduation. All files are maintained by the MLS Program Director and MLS Program Manager.

Upon graduation, student records are exported from Typhon. Past student records and files are stored indefinitely in a secured electronic drive that only the MLS Program Director and MLS Program Manager have access to.

The student will be asked to sign a statement giving the MGB MLS Program permission to release information to future employers and allow the program to collect an evaluation of entry level performance from the employer. Release of student information is also required to sit for the ASCP BOC.

PROGRAM POLICIES

Attendance Policy

The MGB MLS program is a 10-month, full-time, in-person program. **Attendance is mandatory for all didactic courses and clinical rotations.** If a student must be absent from a didactic class or clinical training day for any reason, they must notify the program director *in addition* to the course and/or clinical instructor ahead of time. The program director and/or clinical instructor will determine excused or unexcused tardiness and absenteeism on a case-by-case basis.

Attendance Point System

The MGB MLS program has implemented an attendance point system to promote accountability and foster consistent attendance. Each day carries a total value of 1.0 points.

Attendance points will be accumulated, and a score will be calculated based on the number of mandatory attendance days for the respective course or clinical rotation. For example, if a clinical rotation has 16 sessions, the maximum attendance points will be 16.0 points.

Specific guidelines govern tardiness, early departures, excused, and unexcused absences. These regulations apply to both the didactic and clinical training blocks.

The following section outlines definitions, point reductions, and the academic action policies:

Tardiness Policy

Tardiness is defined as arriving more than 15 minutes late to the classroom or assigned training lab area at the scheduled time.

If a student anticipates a delay for any reason, it is their responsibility to promptly notify the program director, in addition to informing the course and/or clinical instructor.

Tardiness Reduction:

Tardiness exceeding 15 minutes will result in a reduction of 0.25 points from the daily attendance score.

Academic Action:

- Accumulating three (3) tardies, whether excused or unexcused, throughout the didactic training block and clinical training block, will lead to an attendance grade reduction and immediate placement on academic probation.
- Exceeding four (4) or more tardies, whether excused or unexcused, will result in dismissal from the program.

Punctuality is essential in our program to maintain the quality of education and clinical training. Adherence to this policy is crucial to your success in the MGB MLS program. If the student is consistently late but within the 15-minute time frame, this will result in a verbal warning and if it continues, the Progressive Discipline policy will be enforced.

Early Dismissal

Requesting early dismissal during a didactic course or clinical rotation is subject to the following rules:

Daily Shift Completion Percentage:

- Leaving before completing 50% of the assigned course or shift will be counted as an absence, resulting in 0.0 points for the day.
- Leaving after completing more than 50% of the assigned shift will be considered a half day, earning the student 0.5 points for the day.

Academic Action:

- Accumulating three (3) early dismissals, whether excused or unexcused, throughout the didactic training block and clinical training block, will lead to an attendance grade reduction and immediate placement on academic probation.
- Four (4) or more early dismissals, whether excused or unexcused, will result in dismissal from the program.

If the student is consistently leaving prior to the scheduled end of the day, this will result in a verbal warning and if it continues, the Progressive Discipline policy will be enforced.

Unexcused Absence – “No Call, No Show”

An unexcused absence occurs when a student does not have a pre-scheduled and approved excused absence or fails to communicate and notify both the Program Director and the laboratory department of their absence. In such cases, students will receive 0.0 points for that day's attendance.

Academic Action Policy:

- Accumulating one (1) unexcused absence, whether during the didactic training block or clinical training block, will lead to an attendance grade reduction and immediate placement on academic probation.
- Accumulating two (2) or more unexcused absences, whether during the didactic training block or clinical training block, will result in immediate dismissal from the program.

Excused Absence

Excused absences are defined as legitimate reasons for not attending class or rotation and must be scheduled and approved by the program director, the clinical coordinator, lead tech, or assistant manager of the department in which the student is rotating.

Excused absences include but are not limited to:

1. **Medical Illness:** Absences due to personal illness or injury, supported by a doctor's note or medical documentation.
2. **Family Emergency:** Absences resulting from unforeseen family emergencies, such as a serious illness or death in the immediate family.
3. **Court Appearance:** Absences required by a court appearance or jury duty with proper documentation.
4. **Religious Observances:** Absences for religious holidays, observances, or practices.

5. **Military Service:** Absences due to military service, including training and deployment.
6. **Scheduled Medical Appointments:** Absences for pre-scheduled medical or dental appointments, with notification, verification, and approval of Program Director.
7. **Severe Weather or Natural Disasters:** Absences due to extreme weather conditions or natural disasters that make attendance unsafe or impossible.
8. **Documented Personal Crisis:** Absences resulting from documented personal crises or exceptional circumstances beyond the student's control.

Please note that excused absences should not be used on exam days (lecture or lab), on days of scheduled enrichment activities, or on the day immediately before or following a program break or holiday.

Academic Action Policy:

- For excused absences, students will receive 0.0 credit for the missed days. Students will be mandated to make up the coursework. Upon completion of missed work, students will regain attendance points.
- Failure to make up the coursework for excused absences will result in the student being immediately placed on academic probation.
- If a student accumulates more than four (4) days of excused absences during a course or clinical rotation, they will default to the medical leave policy.
- Under the medical leave policy, students will receive an "INCOMPLETE" for the course, and a delay in graduation may be possible, depending on the circumstances.

It is crucial for students to promptly address the make-up of coursework for excused absences to ensure their academic progress and timely graduation in the MGB MLS program.

Excused absences may not be used on exam days (lecture or lab), on days of scheduled enrichment activities, or the day immediately before or following a program break or holiday.

Any of the following combinations of unexcused absences, tardies, or early dismissals will result in probation or dismissal according to the quantity of violations a student accrues.

| Tardies | Early Dismissals | Unexcused Absences | Result |
|---------|------------------|--------------------|-----------|
| 3 | 0 | 0 | Probation |
| 0 | 3 | 0 | Probation |
| 0 | 0 | 1 | Probation |
| 2 | 1 | 0 | Probation |
| 1 | 2 | 0 | Probation |
| >4 | 0 | 0 | Dismissal |
| 0 | >4 | 0 | Dismissal |
| 0 | 0 | 2 | Dismissal |
| 1 | 1 | 1 | Dismissal |
| 2 | 0 | 1 | Dismissal |
| 0 | 2 | 1 | Dismissal |
| 2 | 2 | 0 | Dismissal |

Bereavement Policy

It is the policy of the MLS Program to provide students up to three scheduled days off from the didactic and clinical training blocks to mourn the loss of their family. For the purposes of this policy, “family” is defined as: spouse, domestic partner; child, stepchild; parent, stepparent, mother-in-law, father-in-law; sibling, stepsibling; grandparent or grandchild; close friend.

Bereavement time off is generally utilized within fourteen (14) days of the date of death. The Program may ask for you to provide a certification of the death, such as a death certificate or a published death notice (obituary).

Medical Leave Policy

Medical leave requirements will align with those in the MGB system. The MGB MLS Program is committed to providing support and flexibility to students facing medical challenges. This policy ensures that medical leave is handled in a manner consistent with established guidelines while promoting academic progress and success. Students are encouraged to reach out to the program coordinator or designated faculty members for guidance on medical leave procedures and documentation. While we will strive to accommodate your needs, please be aware that a delay in graduation of up to six (6) months may be necessary in certain situations to ensure your health and well-being.

If a student misses more than 5 consecutive days (1 full work week) due to medical leave:

1. **INCOMPLETE Grade:** If a student misses more than five (5) consecutive days due to medical leave, equivalent to one full work week, they will receive an "INCOMPLETE" grade for the affected course or clinical.
2. **Progression Implications:** A student who receives an "INCOMPLETE" grade will be temporarily prohibited from progressing to the next course set or clinical rotation within the program.

3. **Course Repeat:** The student will be required to repeat the didactic course or clinical rotation affected by the "INCOMPLETE" grade in a future cohort or as specified by the program director.
4. **Delay in Graduation:** The MGB MLS program and its clinical sites will make reasonable efforts to accommodate students facing medical challenges. Accommodations may include rescheduling clinical rotations, allowing for coursework completion, or providing alternative assessment options.

It is important to note that while reasonable accommodations will be sought, it may not always be possible to meet the original program timeline. In cases where significant adjustments are required, students should expect a potential delay in graduation of up to six (6) months beyond the initially projected graduation date.

Make-Up Work Policy

Individual faculty attendance requirements are outlined in the course syllabi. Students are responsible for work missed and are required to meet with the course instructor to discuss a plan to make up missed work. Make-up labs are permitted at the discretion of the instructor.

Written exams, laboratory practicals, quizzes, and virtual assignments must be taken at the designated times and/or completed by the scheduled due date. Make-up exams and assignments are not automatic and will be given at the discretion of the course instructor. Students must notify the course instructor of their absence prior to the scheduled exam or assessment. Make-up exams will cover the assigned material; however, the exam format and questions will differ from the exam administered on the original date.

Students are strongly encouraged to limit working over-time hours during the program. In addition to the 40.0 hour per week on-site commitment, students will be required to complete homework assignments, case studies, and other requirements outside of scheduled classroom time.

Academic Progression Policy

Didactic Training Block

Each didactic course will have a syllabus, which will outline the course description, learning objectives, instructional resources, and methods for student evaluation. Each instructor will set specific benchmarks for progression in the course and will evaluate each student at specific intervals with unit-based competency assessments. If an individual is not meeting required benchmarks, a remediation plan will be developed.

Failure of a one to two (1 – 2) minor didactic courses

If a student does not achieve a passing grade ($\geq 72.5\%$) in one to two of the minor didactic courses (Introduction to Medical Laboratory Science, Clinical Immunology & Serology, Urinalysis & Body Fluids, Molecular Diagnostics, and Laboratory Management and Quality) the student will be placed on probation. Any failure of an additional course will result in dismissal from the program.

Failure of a three (3) minor didactic course

If a student does not achieve a passing grade ($\geq 72.5\%$) in three minor didactic courses (Introduction to Medical Laboratory Science, Clinical Immunology & Serology, Urinalysis & Body Fluids, Molecular Diagnostics, and Laboratory Management and Quality) the student will be dismissed from the program.

Failure of a one (1) major didactic course

If a student does not achieve a passing grade ($\geq 72.5\%$) in a major didactic course (chemistry, hematology, immunohematology, or microbiology) the student will be prohibited from attending the corresponding clinical practicum. The student will be given one (1) opportunity to retake the course with a subsequent cohort. If the student passes, they will graduate with that cohort.

If the student does not pass on the second attempt, they will be dismissed from the MLS training program. However, if the individual has completed and passed all other coursework and corresponding clinical rotations, they will be eligible to sit for a single categorical exam.

Failure of two (2) or more major didactic courses

If a student does not achieve a passing grade ($\geq 72.5\%$) in two (2) or more major didactic courses (chemistry, hematology, immunohematology, or microbiology) the student will be dismissed from the program.

Failure of a one (1) clinical rotation course

Students must adhere to the clinical training as outlined by their assigned clinical affiliate. Students will be required to meet competencies, benchmarks, and complete exams while on clinical rotation. If an individual is not meeting required benchmarks, the clinical instructor will indicate this in their weekly check-in report, and a remediation plan will be developed. Failure to meet benchmarks may result in a failing grade in the clinical course.

The student will be given one (1) opportunity to retake the clinical rotation. Rescheduling clinical rotations can be challenging, and it is possible that a make-up clinical rotation may be different than the originally scheduled clinical site. Additionally, it is possible that the clinical site cannot

accommodate the student until after the student's anticipated graduation cycle. In this circumstance, and if the make-up clinical rotation course is passed, the student will not graduate with their cohort and will receive a delayed certificate of completion. If the student does not pass on the second attempt, they will be dismissed from the MLS training program.

Failure of two (2) or more clinical rotation courses will result in an automatic dismissal from the program.

Students will be given the one (1) opportunity to reapply to the MLS training program if dismissed for academic reasons.

Academic Integrity Policy

Students are expected to conduct themselves in a manner reflecting personal and professional integrity. Honesty and integrity are fundamental characteristics of healthcare professionals. Academic dishonesty of any kind will result in the immediate dismissal from the program.

Academic integrity violations include the following:

Cheating – providing or obtaining unauthorized information during an exam, sharing exam content prior to the exam, taking an exam for another person, and falsifying documents. Examples of cheating include:

- Unauthorized collaboration on assignments or examinations.
- Taking an exam or completing an assignment for another individual.
- Asking or allowing someone else to take an examination or complete an assignment for you, this includes online assignments and exams.
- Submitting someone else's work as your own, including, but not limited to, material obtained in whole or in part from commercial study or homework help websites, or content generated or altered by digital paraphrasing tools.
- Giving assistance to acts of academic misconduct.
- Unauthorized use during an examination of notes, prepared answers, or any electronic devices such as cell phones, computers, smart watches, or other technologies to copy, retrieve, or send information.
- Forging signatures of authorization.
- Falsifying information on an official document.
- Falsifying medical documentation that has a bearing on campus access or the excuse of absences or missed examinations and assignments.

Plagiarism - where an individual uses the words or ideas of another without crediting or seeking permission from the author. Examples of plagiarism include:

- Copying another individual's actual words or images without reference attributing content to the original source.
- Presenting another individual's theories or ideas as your own without acknowledging the original source.

- Failure to acknowledge collaborators on homework and laboratory assignments.
- Internet plagiarism, including paraphrasing or directly copying from publications, package inserts, textbooks, MediaLab, AACC Learning Lab, and other online resources without citing their source.

HIPAA Compliance Policy

The Health Insurance Portability and Accountability Act (HIPAA) of 1996 is a federal regulation regarding patient privacy. HIPAA requires all patient information and results must be kept confidential, and that patient results can only be reported to the professionals directly involved with the patient's treatment and care.

Maintaining patient privacy is everyone's responsibility. Personal cell phones cannot be used to photograph or text any protected health information (PHI). A breach of HIPAA or PHI will result in immediate disciplinary action, which may result in probation or immediate dismissal from the program depending upon the level of the violation. Students will be required to complete HIPAA training at the beginning of the program.

Cell Phone & Social Media Policy

Cell phones must be placed on mute and stowed away during the day. If the student needs to respond to an emergency text or call during class, the student is asked to leave the classroom. Personal cell phone use must occur outside of the laboratory space in clean areas. Students can use personal cell phones on breaks, during lunch, or in personal emergencies. Cell phones must be turned off during all assessments, quizzes, exams, and during laboratory exercises. **Student must have permission from the faculty to videotape, audio tape, or take photographs in the classroom.**

During clinical rotations, any use of electronic devices (cell phones, laptops, etc.) must be with faculty approval within the guidelines of facility policies. Personal phone conversations or texting are not allowed at any time while in clinical areas. Personal cell phones cannot be used to photograph or text any protected health information (PHI). Students are prohibited from posting patient-related information on social media platforms.

Students are expected to maintain professional boundaries in the use of social media. Students should not have any online contact with patients or instructors during the program.

Students will have the option to participate in promotional activities for the MGB MLS program, which may include photos, recordings, and videos. Students must consent to the use of their photos for program promotion with the MGB Consent for Photography and Recordings form, which is available in the MGB MLS Training Lab.

Progressive Discipline Policy

The MGB MLS faculty and clinical instructors are committed to assisting students in their success throughout the program.

Students that do not meet core course competencies, fail to maintain a passing grade, fail to progress after repeated remediation, violate laboratory safety policies, and/or violate the MGB MLS Code of Ethics will be apprised of their performance status using the following progressive discipline process.

The individual responsible for identifying a policy violation will be responsible for completing a student disciplinary action form and filing with the program director. The disciplinary action form will be kept in the student files for the length of the program.

Verbal Warning

Students will receive a verbal statement regarding the failure to meet academic standards and/or violation of policy. The instructor will be responsible for completing a student disciplinary action form.

Written Warning

A written warning will inform a student of additional exam failure, clinical competency failure, continued violation of state or laboratory policies, or continued violation of the Honor Code. The student is required to meet with the program director and instructor upon receipt of the warning notice and develop a plan to correct deficiencies.

Probation

Probation will occur when the student continually fails to meet the terms in the written notice. The terms of probation will be written up in the probation document. Students can only go on probation one (1) time.

Dismissal

Dismissal will occur if the student does not meet the terms of probation. The student will be dismissed from the program. All students have the opportunity to reapply to the MLS program one (1) time.

Student Grievance & Appeals Policy

If a student feels a rule, regulation, grade, or disciplinary measure (academic or nonacademic) is unfair or prejudiced, or they have experienced unfair treatment or mistreatment, the student should follow the processes below.

In the event that a student feels aggrieved, the student must:

1. Contact the relevant faculty member or clinical instructor and schedule a meeting to attempt to resolve the matter. This should be done within two (2) weeks of the identified issue.

If the student does not feel comfortable doing this alone, a third party not directly involved with the situation can be present. The third person can include the following individuals:

- MLS Program Director
- MLS Faculty
- Laboratory Manager/Supervisor

2. If the student feels that the matter was not resolved to the student's satisfaction at the conclusion of the meeting, the student can appeal their case with the Academic Grievance Committee. The Grievance Committee will be composed of the department manager/supervisor, faculty member, MLS program director, and neutral third party from Human Resources.

The committee will meet with the student and review the case and any supporting document. The committee will make a decision and communicate this information to the student in writing. The Grievance Committee's decision is final.

Email Etiquette Policy

Accepted students will be provided with a MGB email address. Email is the primary mode of communication in professional settings. This is a professional email and should be used as such.

Email etiquette is how to maintain a respectful, appropriate, and professional tone when communicating in an online format. This includes but is not limited to using correct spelling and grammar, addressing the reader with correct titles, avoiding the use of slang and/or emojis, and identifying oneself and one's needs clearly. Email etiquette is especially relevant for students communicating with instructors and superiors.

Students and instructors are expected to check email at least one (1) time per day. Instructors will respond to emails within 24 hours during the scheduled workweek. Instructors are not required to reply to email on the weekends. It is important to ask questions regarding homework and/or exams prior to the weekend to ensure that you get a reply in a timely manner.

Inclement Weather Policy

In cases of inclement weather, local conditions may prohibit students from getting to class or clinical on time. Students are expected to make a reasonable attempt to get to class, lab, or clinical rotation, but each student is encouraged to utilize personal judgment in deciding to attend class based on their local weather circumstances and safety of travel.

Didactic Training Block

If the state of Massachusetts or Brigham & Women's Hospital officially declares a weather emergency during the didactic training block, the MGB MLS Training Lab will be closed, and in-person classes and labs will be cancelled but will remain open for remote learning. Due to the accelerated nature of the MGB MLS program, the lecture component of the course will transition to remote, and students will be responsible for reviewing lecture content and completing associated online learning assignments.

Clinical Training Block

If the state of Massachusetts or Brigham & Women's Hospital officially declares a weather emergency during the clinical training block, students should reach out directly to the clinical coordinator and departmental instructor. Students are to attend clinical with permission of the clinical coordinator and the clinical site, and at your discretion for safely traveling to and from the clinical site. If the student misses a clinical rotation day, the clinical instructor will determine if a make-up day is required.

Withdrawal & Refund Policy

It is the responsibility of each student to make every effort to complete the full MLS program. A certificate of completion is only awarded upon completion of the entire didactic training block and clinical training blocks.

If a student voluntarily withdraws from the MGB MLS program or is dismissed due to academic failure, the student must:

- Provide written statement of withdrawal to the Program Director
- Return their student ID badge(s)

If the student withdraws from the program *before* their schedule start date, the full tuition will be refunded. The \$100 acceptance fee is non-refundable. Tuition is not refundable *after* the scheduled program start date.

Dress Code & Personal Hygiene Policy

A professional appearance is required by MGB MLS students at all times. Guidelines for appropriate attire follows both professional and safety guidelines.

Students must adhere to the established dress code requirements:

1. **Clothing**

Didactic Training Block: Students must wear publicly acceptable attire in the classroom setting while in the didactic training block. Clothing should be clean and in good repair. Students should always dress prepared to attend lab with long pants free of tears/rips.

Clinical Training Block: Students will confirm to the dress code outlined by the clinical site.

2. Shoes: Closed-toed shoes are required to work in the laboratory setting. Tennis and/or athletic sneakers (comfortable) shoes are strongly recommended. Clogs, crocs, and other shoes with holes and no back support are not allowed.

3. Lab Coat: Students are expected to wear a fluid resistant lab coat while in the laboratory setting. Students will be provided with a lab coat in the MLS training lab facility and on clinical rotation.

4. Identification Badge: Students will be provided with a BWH Student ID Badge upon acceptance to the program. The badge must be worn at all times on a lanyard.

5. Jewelry: Jewelry should be limited to wedding rings and a wristwatch. A conservative necklace that is kept close to the skin (not dangling) and conservative earlobe earrings that do not extend more than ½ inch below the earlobe are acceptable.

Students must adhere to the established personal hygiene requirements:

1. Students must maintain personal cleanliness by bathing regularly and utilizing deodorant/antiperspirant to avoid offensive odors.
2. Maintain good oral hygiene (brushing of teeth).
3. Avoid heavily scented perfumes, colognes, and aftershave lotions. Some individuals have allergies or adverse reactions to certain fragrances.
4. Clean and trimmed fingernails (¼ inch long or less). Nail polish is acceptable. Long, artificial nails should be avoided.
5. Hair must be clean and pulled back to meet safety standards.
6. Facial hair must be trimmed and cleaned.

Clinical Placement Policy

The Program Director and Clinical Coordinator are responsible for assigning students to an MGB MLS program affiliated clinical laboratory for the clinical training block. The MGB MLS Program anticipates having ten (10) students maximum requiring clinical practicums per cohort. The number of students should never exceed the number of clinical rotation spots available.

However, there is the possibility that clinical rotation slots maybe limited due to staffing issues at a previously available site. In the unlikely event that there are more students than clinical rotation spots, assignments will be based on academic performance (course grades). Students that cannot be placed on clinical rotation during the normally scheduled time will be assigned to the next available clinical site.

Service Work Policy

MGB MLS students cannot, under any circumstances, be used to take the place of qualified staff during the clinical training block. Students must be supervised by the Clinical Site Liaison and/or Clinical Instructor at all times. After demonstrating proficiency students may, with qualified supervision, be permitted to perform procedures. Any work performed by students during their time during practicum must be checked by a qualified medical laboratory scientist.

Service work by students outside of regular academic hours must be noncompulsory, supervised, on-site, paid, and subject to employee regulations.

Student Supervision Policy

The Clinical Site Liaison and Clinical Instructors are responsible for ensuring that each rotating trainee is supervised at all times during the clinical rotation and agree to the Service Work Policy. The Affiliate may not, under any circumstances, use the student trainee to perform work (service work) in lieu of a regular employee. This would violate NAACLS accreditation standards for the MGB MLS program.

Student Record Release Policy

The student will be asked to sign a statement giving the MGB MLS Program permission to release information to future employers and allow the program to collect an evaluation of entry level performance from the employer. Release of student information is also required to sit for the ASCP BOC.

APPENDIX

Appendix A. Student Policy Acknowledgement

Instructions: Upon acceptance to the MGB MLS Program, students must review the Student Handbook in detail and acknowledge understanding of program policies. Please sign and date each of the following lines associated with specific policies below. Electronic signatures via Adobe are acceptable. After signing, upload an electronic copy of this document to the Policy Acknowledgment line item associated with your Typhon profile.

Student Name (Print) _____

Student Handbook Acknowledgement

I have read MGB MLS Student Handbook in detail. I understand the program requirements and agree to abide by the policies set forth in the Student Handbook.

Signature _____

Date _____

Technical Standards Acknowledgement

I have read and understand the MGB MLS Program Technical Standards and believe that I meet them with or without reasonable accommodations.

Signature _____

Date _____

Health Requirement Acknowledgement

I have read and understand the MGB MLS Program health requirements and agree to disclose this information to the program by providing recent health documentation by the program start. Failure to provide this information by the scheduled due date will forfeit my spot in the program.

Signature _____

Date _____

Professional Requirements Acknowledgement

I have read and understand the MGB MLS Program professional requirements and agree to disclose this information to the program by providing documentation by program start. Failure to provide this information by the scheduled due date will forfeit my spot in the program.

Signature _____

Date _____

Tuition & Fees Acknowledgement

I have read and understood the tuition and fees associated with the MGB MLS program. I understand that the acceptance fee is non-refundable, and that the program tuition is non-refundable after the schedule start date.

Signature _____

Date _____

Program Record Release Policy Acknowledgement

I have read and understand the Program Record Release Policy. I give the MGB MLS Program consent to release or obtain information:

- about my performance as a student in this program to future employers
- from my employer by having them complete an Employer Survey of your graduate entry-level skills to be utilized for program improvement
- to the American Society for Clinical Pathology Board of Certification as requested to approve application to take the certification exam.

Signature _____

Date _____

HIPAA Compliance Acknowledgement

I have read and understand the HIPAA Compliance policy. As an MGB MLS student I am aware of my responsibilities to maintain the confidentiality of patient information. I understand that a breach in this policy could result in dismissal from the program.

Signature _____

Date _____

Academic Integrity Policy

I have read the Academic Integrity Policy and understand actions that are classified as a violation. As a student in the MGB MLS Program, I pledge to adhere to the policy requirements and maintain the highest level of academic honesty.

Signature _____

Date _____

Accountability & Responsibility Acknowledgement

The MGB MLS program is a rigorous and accelerated 10-month training program designed to prepare students for the fast-paced environment of the clinical laboratory. Throughout the program, students will be expected to complete assignments in a timely manner, dedicate time daily to study new material, and use the resources provided to reinforce material taught.

By signing my name below, I understand that as a student in the MGB MLS Program, I should not work more than 24 hours in one week and will be required to complete at least 2 – 4 hours' worth of homework, projects, and assignments every night once the didactic training day has concluded.

Signature _____

Date _____

Attendance Policy Acknowledgement

I acknowledge that I have read and understood the MGB MLS program's Attendance Policy. I am aware of the 10-month, full-time, in-person commitment, and I understand the mandatory attendance for didactic courses and clinical rotations. I commit to notifying the program director and instructors in advance of any absences and acknowledge the Attendance Point System, including policies on tardiness, early dismissals, excused and unexcused absences. I recognize the potential academic consequences for non-compliance and confirm my commitment by signing below.

Signature _____

Date _____

Appendix B. Disciplinary Action Form

| | |
|--|--|
| Student Name: _____ | Program: _____ |
| Policy Violation: _____ | Type of Action: _____ Verbal Warning (Dept. Only) |
| Date/Time of Incident: _____ | _____ Written Warning |
| Description of Incident/Behavior: | _____ Probation |
| | _____ Dismissal |
| Reported by: _____ | Title/Role: _____ |
| Other individuals that may have information: | |
| Supporting Evidence, if any (describe in space below and provide copies of documentation): | |
| Students Comments (provide copies of documentation if needed): | |
| Corrective Action Plan: | |

By affixing my signature below, I acknowledge the disciplinary action notice.

Student Signature

Date

MLS Program Director Signature

Date

Appendix C. Credit for Previous Lab Experience Form

Accepted students with previous clinical laboratory experience may be able to petition out of the one (1) clinical rotation during the clinical training block. Students cannot petition out of didactic courses.

Student Name: _____

Date: _____

To petition out of a clinical rotation, students must either meet A *or* B. Select your petition method by completing box A or B.

Box A: Current MLT Certification

Have completed academic course work through a NAACLS accredited MLT program *and* hold a current MLT(ASCP) certification. Attach a copy of current MLT(ASCP) certification to this form.

MLT ASCP Certification Number: _____

Box B: Work Experience

Worked in the corresponding clinical laboratory department for at least one (1) year *and* have completed all training and competencies for each major bench within the department according to the ASCP Experience Documentation (Routes 2 & 4).

Clinical Laboratory: _____

Department: _____

Supervisor/Manager: _____

Email: _____

Rotation Petition Request: _____ Blood Bank

_____ Chemistry

_____ Hematology

_____ Microbiology

Appendix D: NAACLS Serious Applicant Status Award

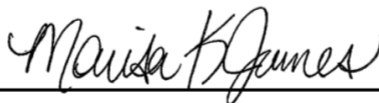
Serious Applicant Status

The Medical Laboratory Sciences Program of Mass General Brigham in Boston, MA is recognized as a Serious Applicant for Initial Accreditation.

| Serious Applicant Status Start Date | Serious Applicant Status End Date |
|-------------------------------------|-----------------------------------|
| March 21 st , 2023 | September 21 st , 2024 |

Serious Applicant Status is a pre-accreditation status for programs seeking Initial Accreditation. Serious Applicant Status is issued when a program has submitted a satisfactory Initial Application Packet and a Self-Study.

A program may remain in Serious Applicant Status for 18 months. After that time, the program must reapply.



Marisa K. James, MA, MLS(ASCP)^{CM}
Chief Executive Officer, NAACLS
March 21st, 2023