University of New Haven

Medical Laboratory Science Graduate Student Handbook

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2022-2023 Academic Year

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University of New Haven
SCHOOL OF HEALTH SCIENCES
Medical Laboratory Science Program

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INTRODUCTION

Purpose Of The MLS Student Handbook

The purpose of the Student Handbook is to bring together all the various policies and procedures that specifically apply for students in the University of New Haven's (UNewHaven) Medical Laboratory Sciences (MLS) Program. Please refer to the University of New Haven Student Handbook for general University policies. This MLS handbook does not replace any official University policy, publication, or procedure. All students must be familiar with and follow all rules and regulations of the University.

The student is responsible to complete all courses necessary to successfully satisfy the requirements of the Medical Laboratory Science Program and to complete all forms, applications, and University requirements for graduation. The Medical Laboratory Science Program cannot and will not be responsible for the student meeting all requirements and deadlines.

The policies, procedures, and program requirements outlined in this handbook are in effect as of Fall 2022 (**latest update: 2022-2023 academic year**). Entering students are responsible for program requirements in effect at the time of initial enrollment. Policies and procedures are subject to change and are communicated to all Medical Laboratory Sciences students upon approval by the MLS faculty.

Note: *The content of the MLS Student Handbook may change at any time. The department faculty reserves the right to make changes and give public notification of such as deemed necessary. The most up-to-date version of the MLS Student Handbook can be found here: UNH MLS Student Handbook*

Introduction to the School of Health Sciences

The School of Health Sciences (SHS) at the University of New Haven is a regional destination and nationally recognized provider of quality health professions education. The School of Health Sciences at the University of New Haven prepares students to develop the competencies necessary to be a successful healthcare professional in the 21st century. The signature of a University of New Haven School of Health Sciences education is our commitment to competency-based education assessed through hands-on learning experiences in simulated and real-world healthcare settings. Students learn and grow through health career exploration, interprofessional education, and hands-on experiences. Our curriculum is focused on healthcare innovation, systems thinking, and using evidence-based approaches to solve today's biggest challenges in healthcare which gives students the tools to succeed in today's complex healthcare environment.

Mission

The School of Health Sciences' mission is to educate **competent, caring health professionals by** delivering **innovative, interdisciplinary** healthcare education and services.

Vision

The School of Health Sciences aims to become a regionally and nationally recognized provider of health education and services at the forefront of health professional education for the 21st century.

Organizational Structure

The School of Health Sciences consists of three operational units as follows:

- The Department of Allied Health
- The Department of Health Administration and Policy
- The Department of Nutrition Sciences

Introduction to the UNewHaven MS Medical Laboratory Science Program

In keeping with the university mission statement, the Medical Laboratory Science (MLS) program is a professional program that serves individuals who are seeking healthcare careers that develop their naturally scientific, analytical, and curious nature. The curriculum consists of basic science, general education, and profession-specific courses that include experiential, collaborative, and discovery-based learning.

The UNewHaven MLS program was developed in response to the shortage of medical laboratory scientists in Connecticut and in the nation at large and at the request of multiple local area hospitals and health systems that are experiencing very high vacancy rates in their medical laboratories. With the support of the community, the MLS program seeks to contribute academically prepared graduates with entry level technical competency and professional behaviors, as a solution to the national shortage of clinical laboratory professionals.

Medical Laboratory Science is a growing field with unprecedented demand for graduates. It is anticipated that the Medical Laboratory Science field will grow by 11% between 2020 and 2030 (US Bureau of Labor Statistics). The most recently published wage survey, conducted by the American Society for Clinical Pathology, shows "an overall increase in salaries for most laboratory occupations surveyed," and the need for properly-trained laboratory professionals continues to rise. This demand for MLS professionals is a result of the aging of our population, subsequent retirement rates within the field, and the increasing sophistication and volume of medical laboratory tests. Although automation of some medical laboratory tasks has taken place, there is still a strong need for graduates who have the analytical, laboratory, and clinical knowledge to effectively work in and manage clinical laboratories.

PROGRAM ACCREDITATION

Status as of 8/9/2022:

This program has earned Serious Applicant Status (SAS) with the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and is awaiting final approval to become a fully Accredited Medical Laboratory Scientist Program.

National Accrediting Agency for Clinical Laboratory Sciences
5600 N. River Rd, Suite 720
Rosemont IL 60018-5119
phone: (773) 714-8880
fax: (773) 714-8886
email: info@naacls.org

OVERVIEW OF THE PROFESSION

Medical laboratory scientists (MLS) [also known as clinical laboratory scientists (CLS) or medical technologists (MT)] are the third largest medical profession after doctors and nurses and play a significant role in the diagnosis, treatment, and management of patients. Medical laboratory scientists perform complex testing using sophisticated instruments to detect diseases and monitor treatment.

NAACLS Description of the Medical Laboratory Scientist profession

The medical laboratory scientist is qualified by academic and applied science education to provide service and research in clinical laboratory science and related areas in rapidly changing and dynamic healthcare delivery systems. Medical laboratory scientists perform, develop, evaluate, correlate, and assure accuracy and validity of laboratory information; direct and supervise clinical laboratory resources and operations; and collaborate in the diagnosis and treatment of patients. The medical laboratory scientist has diverse and multi-level functions in the principles, methodologies, and performance of assays; problem-solving; troubleshooting techniques; interpretation and evaluation of clinical procedures and results; statistical approaches to data evaluation; principles and practices of quality assurance/quality improvement; and continuous assessment of laboratory services for all major areas practiced in the contemporary clinical laboratory.

Medical laboratory scientists possess the skills necessary for financial, operations, marketing,and human resource management of the clinical laboratory.

Medical laboratory scientists practice independently and collaboratively, being responsible for their own actions, as defined by the profession. They have the requisite knowledge and skills to educate laboratory professionals, other healthcare professionals, and others in laboratory practice as well as the public.

The ability to relate to people, a capacity for calm and reasoned judgment and a demonstration of commitment to the patient are essential qualities. Communications skills extend to consultative interactions with members of the healthcare team, external relations, customer service and patient education.

Medical laboratory scientists demonstrate ethical and moral attitudes and principles that are necessary for gaining and maintaining the confidence of patients, professional associates, and thecommunity.

NAACLS Description of Entry Level Competencies of the Medical Laboratory Scientist

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, 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:

A. Application of safety and governmental regulations and standards as applied to clinical laboratory science.
B. Principles and practices of professional conduct and the significance of continuing professional development.

C. Communications sufficient to serve the needs of patients, the public, and members of the healthcare team.
D. Principles and practices of administration and supervision as applied to clinical laboratory science.
E. Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services.
F. Principles and practices of clinical study design, implementation, and dissemination of results.

American Society for Clinical Laboratory Science (ASCLS) – Code of Ethics

Preamble

The Code of Ethics of the American Society for Clinical Laboratory Science sets forth the principles and standards by which Medical Laboratory Professionals and students admitted to professional education programs practice their profession.

I. Duty to the Patient

Medical Laboratory Professionals' primary duty is to the patient, placing the welfare of the patient above their own needs and desires and ensuring that each patient receives the highest quality of care according to current standards of practice. High quality laboratory services are safe, effective, efficient, timely, equitable, and patient-centered. Medical Laboratory Professionals work with all patients and all patient samples without regard to disease state, ethnicity, race, religion, or sexual orientation. Medical Laboratory Professionals prevent and avoid conflicts of interest that undermine the best interests of patients.

Medical Laboratory Professionals are accountable for the quality and integrity of the laboratory services they provide. This obligation includes maintaining the highest level of individual competence as patient needs change, yet practicing within the limits of their level of practice. Medical Laboratory Professionals exercise sound judgment in all aspects of laboratory services they provide. Furthermore, Medical Laboratory Professionals safeguard patients from others' incompetent or illegal practice through identification and appropriate reporting of instances where the integrity and high quality of laboratory services have been breached.

Medical Laboratory Professionals maintain strict confidentiality of patient information and test results. They safeguard the dignity and privacy of patients and provide accurate information to patients and other healthcare professionals. Medical Laboratory Professionals respect patients' rights to make decisions regarding their own medical care.

II. Duty to Colleagues and the Profession

Medical Laboratory Professionals uphold the dignity and respect of the profession and maintain a reputation of honesty, integrity, competence, and reliability. Medical Laboratory Professionals contribute to the advancement of the profession by improving and disseminating 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.

Medical Laboratory Professionals accept the responsibility to establish the qualifications for entry to the profession, to implement those qualifications through participation in licensing and certification programs, to uphold those qualifications in hiring practices, and to recruit and educate students in accredited programs to achieve those qualifications.

Medical Laboratory Professionals establish cooperative, honest, and respectful working relationships within the clinical laboratory and with all members of the healthcare team with the primary objective of ensuring a high standard of care for the patients they serve.

III. Duty to Society

As practitioners of an autonomous profession, Medical Laboratory Professionals have the responsibility to contribute from their sphere of professional competence to the general well-being of society. Medical Laboratory Professionals serve as patient advocates. They apply their expertise to improve patient healthcare outcomes by eliminating barriers to access to laboratory services and promoting equitable distribution of healthcare resources.

Medical Laboratory Professionals comply with relevant laws and regulations pertaining to the practice of Clinical Laboratory Science and actively seek, to change those laws and regulations that do not meet the high standards of care and practice.

ASCLS Pledge to the Profession

As a Medical Laboratory Professional, I pledge to uphold my duty to Patients, the Profession and Society by:

- Placing patients' welfare above my own needs and desires.
- Ensuring that each patient receives care that is safe, effective, efficient, timely, equitable and patient-centered.
- Maintaining the dignity and respect for my profession.
- Promoting the advancement of my profession.
- Ensuring collegial relationships within the clinical laboratory and with other patient care providers.
- Improving access to laboratory services.
- Promoting equitable distribution of healthcare resources.
- Complying with laws and regulations and protecting patients from others' incompetent or illegal practice
- Changing conditions where necessary to advance the best interests of patients.

UNEWHAVEN MLS PROGRAM DESCRIPTION

Graduates of the MS-MLS program will be prepared to work in clinical laboratories, hospitals, urgent care clinics, doctor's offices, blood banks, fertility centers, government service (such as the public health department), and medical manufacturing and supply companies. They will also be qualified to work in veterinary laboratories, technical sales, instrument service, management, teaching, and technical medical writing. Since the curriculum will emphasize an understanding of laboratory methods and diagnostic interpretation, graduates of the UNewHaven MLS program may also qualify for entry into a variety of other graduate degree programs, including pathologists' assistant, physician assistant, or medical school training.

STEM Designation: This program is STEM (science, technology, engineering, and math)-designated by the Department of Homeland Security. For more information, please see https://www.newhaven.edu/admissions/stem-designated-programs.php

Who This Program is Intended For

The MS in Medical Laboratory Science graduate program is designed for individuals holding a Bachelor of Science in biology, chemistry, or a related major and who are not certified medical technologists or medical laboratory scientists but who desire a career in the clinical laboratory sciences. Medical laboratory scientists are trained to work in clinical chemistry, hematology, immunohematology, immunology, and microbiology with various sub-specialties in each of those major areas. Our graduate program of study consists of 52 credits of coursework designed to provide the knowledge and technical skills necessary to qualify an individual for work in a diagnostic clinical laboratory, in research, or in industry.

Students will complete two years of professional medical laboratory science coursework, spanning all areas of the laboratory. The professional course work includes didactic courses, student laboratory instruction, and clinical experience rotations. Upon completion of the program, students are eligible to sit for the ASCP BOC exam to become a board-certified medical laboratory scientist. ***Graduation from the MLS program is not contingent upon passing any external certification or licensure exam.***

During the fall and spring semester of the final year, students complete a clinical internship in a local area healthcare organization or laboratory where students can practice their laboratory skills in hematology/hemostasis, clinical chemistry, blood bank and microbiology, under the supervision of an experienced medical laboratory scientist. Other sub-specialty areas for clinical rotation will depend on the hospital. All students will complete a capstone project and will prepare for the board certification examination.

UNewHaven Program Mission and Vision Statements

UNEWHAVEN MLS program mission is to provide a rigorous, competitive undergraduate training program to prepare graduates to become competent medical laboratory scientists who demonstrate ethical standards and promote patient-centered care.

UNEWHAVEN MLS program vision is to become a destination program for medical laboratory science in the region recognized for quality faculty, strong industry partnerships, and successful graduates. All graduates from the MLS program will become competent, ethical, certified MLS professionals prepared to become an essential member of the healthcare team.

Program Outcomes

After completing this program, students will:

1. Demonstrate mastery of theoretical knowledge & readiness to pass the ASCP certification exam.
2. Perform practical skills based on entry level competencies in each clinical discipline.
3. Demonstrate effective skills in communication, systematic thought, and writing.
4. Apply positive professional ethics, attitudes, and practices.
5. Apply research skills applicable to medical laboratory diagnostics and the improvement of patient care.
6. Justify a commitment to lifelong learning and professional development.

UNewHaven MLS Program Objectives

***Professional Communication**:* To interact and communicate effectively by presenting information in oral and written formats; collaborate with professionals, peers, and clients; express ideas clearly; and give and receive feedback to serve the needs of patients, the public, and members of the healthcare team.

Professional Competence: To possess knowledge, skills, and abilities to acquire an entry level position as a Medical Laboratory Scientist, and to successfully complete the ASCP BOC MLS examination.

Professional Ethics and Conduct: To learn to treat patients and colleagues with respect, care, and thoughtfulness; to perform duties in an accurate, precise, timely, and responsible manner; to maintain strict confidentiality of patient information and test results; and to exercise professional judgment, skill, and care while meeting established standards of the MLS profession.

Professional and Personal Development: To continuously improve and apply medical laboratory skills and knowledge and share such with colleagues, other members of the healthcare community, and the public.

ADMISSION REQUIREMENTS

For program admissions and Special Requirements see Appendix A

An undergraduate GPA of 2.7 and successful completion of all prerequisites are recommended for entry into the graduate MLS program. Students in the MS-MLS program must maintain a 3.0 GPA or above for placement in the clinical rotations.

Students must complete a capstone project, which will be developed in MLSC 6651 in the fall of the second year and completed in MLSC 6652 in the spring of the second year. This course provides an opportunity for students to integrate their knowledge and experience into a culminating research project, clinical project, or practical experience. Students will demonstrate connections between concepts and skills encountered in previous health related coursework to their capstone project and experiences. Students are required to complete all clinical courses in their final year of the program with a B or better. This includes MLSC 6631, MLSC 6632, MLSC 6641, and MLSC 6642. Students must also complete a comprehensive exam in MLSC 6631 and MLSC 6632 with a grade of 80% or better.

The UNewHaven MLS program has a goal to prepare competent, entry-level Medical Laboratory Scientists. NAACLS accreditation requires that the program achieve a 75% ASCP-BOC passage rate and a 70% graduation rate. Failure to pass the comprehensive exam and to pass the clinical rotations are grounds for dismissal from the program. Dismissal from the MLS Program is not equivalent to dismissal from the university. The student may appeal through the University's grievance procedure. The student may reapply to the MLS Program for the possibility of admittance into a future cohort.

PROGRAM REQUIREMENTS

Program Curriculum

The following list describes the prerequisite courses as well as the courses required for the MS MLS major.

List of Prerequisite Courses		Credit Hours
BIOL 3311/3313	Molecular Biology	4
BIOL 3304	Immunology	3

The above courses are not included in the MS in MLS program; however, either these courses or ones with equivalent content must be completed prior to graduation from the program.

List of Major Required Courses		Credit Hours
MLSC 6600	Immunohematology and Transfusion Medicine	3
MLSC 6610	Clinical Chemistry	4
MLSC 6611	Clinical Mycology, Parasitology, and Virology	3
MLSC 6612	Laboratory Operations, Regulation, and Compliance	3
MLSC 6613	Clinical Bacteriology for Medical Laboratory Science	4
MLSC 6614	Hematology with Laboratory	4
MLSC 6615	Phlebotomy and Sample Processing	2
MLSC 6616	Blood coagulation, Hemostasis and Urinalysis w/lab	4
MLSC 6641	Clinical Seminar I Education	2
MLSC 6642	Clinical Seminar II Education	3
MLSC 6651	Clinical Practicum I	2
MLSC 6652	Clinical Practicum I	6

REQUIRED ELECTIVES: Six credits of PUBH or HCAD electives or other graduate level coursework as approved by advisor

See Appendix D for course descriptions.

Additional Requirements

Clinically intensive programs utilize several off-site facilities to support a wide variety of clinical experience. Transportation to and from these sites is the responsibility of the student.

Background Checks and Immunizations

Internships and clinical sites frequently require students to complete a criminal background check in order to be placed at their facility. Students are also required to submit required health and immunization records prior to the start of clinical education. Students are responsible for the cost associated in obtaining background clearance and necessary health requirements. Please consult the program-specific chairperson for more information.

Exposure to Bloodborne Pathogens

Exposures to blood and other body fluids occur across a wide variety of occupations. Health care workers can be exposed to blood through needlesticks and other sharps injuries, mucous membranes, and skin exposures. The pathogens of primary concern are the human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).

Grading Policy

Grading in the MLS program is defined by the following domains:

- Cognitive: includes written or computerized tests, quizzes, checklists, worksheets, case studies, presentations, and/or reports used to assess the student's knowledge of the subject area.
- Psychomotor: includes technical skills judged by performance on a combination of practical exercises and exams, image exams, completion of procedures, checklists, worksheets, or other assignments.
- Affective: includes evaluation of behaviors like attendance and participation as well as formal evaluation using a behavior-based rating scale like that on the Affective Evaluation form.

All final course grades for MLS Program courses will be assigned based on the following scale:

Graduate Grade Scale			
Grades Scored Between (%)			Letter Equivalent
95	to	100	A
90	to	Less than 94	A-
87	to	Less than 90	B+
85	to	Less than 87	B
80	to	Less than 85	B-
77	to	Less than 80	C+
75	to	Less than 77	C
Less than 75%			F*

*Failure to achieve the minimum standard in any MLS program course will earn an F (Failure) grade for the course.

In order to continue in the Medical Laboratory Science Program, students **must meet the minimum standard of 75% (C)** or better in all MLS courses, including the didactic and laboratory components. Earning below a 75% in this course will mean the student has failed the course.

Students must complete a capstone project, which will be developed in MLSC 6651 in the fall of the second year and completed in MLSC 6652 in the spring of the second year. This course provides an opportunity for students to integrate their knowledge and experience into a culminating research project, clinical project, or practical experience. Students will demonstrate connections between concepts and skills encountered in previous health related coursework to their capstone project and experiences.

Students are required to complete all clinical courses in their final year of the program with a B or better. This includes MLSC 6631, MLSC 6632, MLSC 6641, and MLSC 6642. Students must also complete a comprehensive exam in MLSC 6631 and MLSC 6632 with a grade of 80% or better.

The final cumulative written exam in each course will cover all materials addressed throughout the course and must be passed with a minimum 80% or better to pass the course for program credit.

TECHNICAL STANDARDS/ESSENTIAL FUNCTIONS

SHS Policy on Technical Standards/Essential Functions

Admitted students must meet the technical standards/essential functions of their program of study. Technical standards establish essential qualities necessary to achieve the skills, knowledge, and competencies for entry-level practitioners as well as meet the expectations of the program's accrediting agency. All students must meet the established abilities and expectations. If a student is unable to fulfill the technical standards/essential functions, with or without accommodations, the student may be dismissed from the program. Please consult the program-specific chairperson for more information.

MLS Program Technical Standards/Essential Functions

Technical Standards/Essential Functions make up the non-academic requirements of the profession that all students must demonstrate to succeed in the UNewHaven MLS program. After reading the Technical Standards/Essential Functions and meeting with the Program Director or Assistant Director, students must sign the Technical Standards/Essential Functions form which will be kept in their MLS department file.

Signing this form (Appendix B) constitutes acknowledgement of and acceptance of these requirements. and are aware of the technical standards/essential functions needed to succeed in the MLS Program. Once admitted to the program, failure to meet any of these Technical Standards/Essential Functions may result in dismissal from the program.

The Technical Standards/Essential Functions required for successful completion of the MLS program at the University of New Haven are listed below. In accordance with the university's commitment to providing equal access for individuals with disabilities under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA of 2008), students seeking reasonable accommodations to meet these requirements should contact the Accessibility Resources Center to ensure appropriate accommodations can be made in a timely manner.

Professional skills:

- Maintain professional decorum and composure in a wide variety of situations.
- Maintain confidentiality and integrity.
- Follow directions, be able to make decisions, prioritize tasks, and work on multiple tasks simultaneously.
- Work independently and in cooperation with others.
- Apply acquired learned skills and knowledge to new situations.
- Work with potential biologic, chemical, radiologic, mechanical, and electrical hazards.
- Maintain personal hygiene and neatness appropriate to the professional workplace.
- Achieve regular, reliable, and punctual attendance at classes and regarding their clinical responsibilities.

Communication skills:

- Communicate effectively and efficiently with coworkers and members of the healthcare team.
- Read and comprehend written material.
- Record information accurately and clearly.

Technical skills:

- Complete fine repetitive movements such as pipetting.
- Manipulate lab instruments.
- Demonstrate proficiency to work with flammable and infectious materials, hazardous chemicals, and electrical equipment.
- Demonstrate proficiency in all areas of the clinical lab.
- Work in areas with distracting noises, unpleasant odors and in close proximity to fellow workers.
- Perform all diagnostic procedures in the clinical lab.
- Perform delicate manipulations of clinical specimens, clinical lab equipment, tools, and instruments.
- Perform diagnostic procedure and venipuncture safely and accurately.
- Adhere to standard precautions and meet safety standards applicable to the clinical laboratory.
- Accurately identify, describe, and record fine details of clinical specimens both macroscopically and microscopically.
- Read and interpret charts, graphs, and labels.
- Read and interpret instrument panels and printouts.
- Independently perform all aspects of diagnostic procedures in the clinical lab and report results accurately and timely.

STUDENT ADVISING AND GUIDANCE

Each student is assigned an academic adviser. Typically, the adviser is a member of the faculty in the major department for the student's degree program. The MLS advisors/faculty and other academic advisors are available to provide guidance for course registrations. It is important that students complete the MLS coursework in a deliberate and systematic way to graduate on time. Students who are completing extra programs such as minors or dual-degree programs, etc., should carefully schedule the completion of these courses.

The MLS director and faculty are available to advise students on program policy comprehension, academic issues, professional goals, or personal issues. If a student is experiencing a challenge that is affecting academic performance, whether it is an illness, a financial crisis, or some other concern, the student should speak with the Program Director as soon as possible. The Program Director will guide students towards applicable policies which may address issues affecting academic performance. All advising and counseling sessions are confidential. All decisions shall be made impartially. Students are encouraged to use the University of New Haven resources and personnel for professional counseling.

The MLS program and the UNewHaven are committed to impartiality and confidentiality of formal and informal information shared by students. The university has many services available to support students throughout their academic career; many of these resources can be found by contacting the Center for Student Success. Refer to the University of New Haven Student Handbook for additional information on student success and advising as well as counseling and psychological services.

Academic Probation and Suspension: The UNewHaven MLS program follows the UNewHaven Academic Standards concerning academic probation. Policies regarding registration restrictions and appeals can be found in the University of New Haven Student Handbook.

DISMISSAL FROM THE MLS PROGRAM:

Potential causes for dismissal include, but are not limited to:

- Violation of the University of New Haven Student Code of Conduct and/or other university policies per the University of New Haven Student Handbook.
- Any act of unsafe behavior.
- Excessive absence or tardiness in any MLS course, including clinical rotations.
- Inability to meet general course competencies.
- Inability to complete the clinical courses as scheduled, for any reason, including student health issues.
- Dismissal from a clinical rotation by an assigned healthcare facility for any reason, per the affiliation agreement.
- Failure to obtain a minimum final grade of 75% (C) in any two MLS course or receiving less than 75% twice in any one MLS course.
- Failure to meet the minimum passing grade requirements for any prerequisite or MLS program course.
- Failure to obtain a minimum of 80% (B-) on the final comprehensive exam for the MLS program.
- "Never" responses to any of the behaviors outlined in the clinical rotations Affective Evaluation form.

Other issues, not described here, may arise where it is considered necessary to dismiss a student.

CLINICAL PRACTICUM

MLS students will complete a clinical practicum at an affiliated clinical laboratory. All elective courses and appropriate MLSC courses must be successfully completed before a student will be eligible for enrollment into clinical practicum courses. The clinical rotation will prepare students for practice in a clinical laboratory and is designed to enhance the student's entry level competencies. During the rotation, the student will be exposed to the daily operations of the laboratory under the supervision of a certified experienced technologist. Students will rotate through the main sections of a clinical laboratory. These areas are Clinical Chemistry, Hematology/Hemostasis, Microbiology, and Immunohematology/Transfusion medicine. Students may be exposed to other subspecialty areas based on the clinical site.

The clinical facility must have enough staff so that the students do not perform service work in lieu of staff. Students can never be used to replace laboratory staff in shortage situations. Students may be employed by clinical affiliates. However, employment must be scheduled outside of clinical practice hours and must not conflict with the student's learning experience and/or performance evaluation. Service work and/or student employment cannot be used to fulfill practicum requirements. If a student wishes to work while in clinical rotation at the site, it is optional and paid.

All students enrolled in the UNewHaven MLS program must complete all required clinical experiences. If a student is unable to complete all required clinical experiences, they will not graduate from the MLS program.

All external clinical experiences must be completed at an affiliated clinical facility. The MLS program will assist students with placement at one of the affiliated clinical facilities. Each facility has its own requirements that must be met before accepting a student for a clinical placement. The student is responsible for meeting the facility's requirements. The UNewHaven MLS program is not responsible for securing clinical placements for students who are unable to meet a clinical facility's placement requirements.

Clinical curriculum

Through well-planned and supervised rotation, students will gain experience in the following areas of laboratory science:

Clinical Chemistry: The chemical analysis of blood and body fluids. This area may also include the subspecialities of serology and immunology: The detection, measurement and identification of antigens or antibodies produced by the immune system in response to the introduction of a foreign substance.

Hematology/Hemostasis: The study of the cellular components of blood and the mechanisms of hemostasis (blood clotting).

Urinalysis: The analysis of urine for cells, casts, protein, cholesterol, and glucose to aid in the diagnosis and treatment of kidney disease, diabetes, urinary tract infections, stone formation, and other diseases

Microbiology: The culture, identification, and susceptibility testing of agents of infectious disease (viruses, parasites, bacteria, and fungi) by traditional biochemical techniques and molecular methods.

Immunohematology/Blood Bank: The science and technology used to prepare blood products and determine the suitability of blood products for transfusion.

Students may also complete supplemental laboratory rotations in Molecular Diagnostics, Virology, Flow Cytometry, and other subspecialty areas based on availability at the clinical rotation site.

After completion of the clinical practicum, students will be able to:

- Understand the responsibilities, roles, and functions of the Medical Laboratory Scientist.
- Practice skills learned in student laboratories.
- Relate lab test results to patient conditions.
- Report accurate and precise results.
- Practice skills in problem-solving and troubleshooting.
- Perform quality control procedures.
- Operate and maintain various instruments used in routine clinical testing.
- Learn to adapt easily to new procedures.
- Develop organizational skills.

ASSIGNMENT TO CLINICAL ROTATIONS

During the spring semester of the first year, students will have the opportunity to arrange either virtual or in-person tours of affiliated clinical facilities. Students will then be able to rank clinical site preferences, noting first, second, and third choices for placement. Although student preference will be considered, assignments will also depend on recommendations from MLS faculty and clinical affiliate education coordinators. Students are not guaranteed their first choice in clinical assignments. The decision of the faculty is final. Students will be notified of their clinical site assignment prior to the end of the spring semester of their junior year. Students will receive a rotation schedule for each semester for which assignments are required. Students will keep this schedule for their records.

If placements are difficult due to the lack of available slots, there will be a priority list that will be based on projected date of graduation, progress in preclinical courses, and willingness to graduate. Priority will be given to students who are ready for graduation immediately upon completion of practicum courses. Every attempt will be made to place all students and to avoid delaying student graduation.

A student who does not pass an assigned clinical rotation will be placed at the end of the priority list and must wait for the next available rotation if there are no other violations of the program's continuance policy.

It is the responsibility of the MLS students to review the didactic course materials in preparation for entering clinical rotations. This includes lecture notes, textbooks, lab materials, and clinical course objectives. Other sources that can be used includes the ASCP BOC Review and other review materials. These resources can be used to prepare for clinical seminars and the national certification.

Clinical rotation attendance is mandatory. See Appendix C for details of the clinical rotation attendance policy.

Clinical Instructors

Clinical instructors at the affiliated clinical sites are experienced Medical Laboratory Scientists who have a dedication to the profession and to students. They are employees of the clinical site and are not part of the university faculty or staff.

CLINICAL SITE INFORMATION

Information about each of the current clinical affiliates is available from the program Clinical Coordinator. Students must consult with the Clinical Coordinator prior to contacting any of the clinical site education coordinators. Preferences on methods of communication and whether said communication should be handled via the program faculty or the student, directly, will depend on the clinical site and the stage of assignment to a clinical site.

Current List of Clinical Facilities:

- VACT Healthcare – West Haven VA Medical Center
- Yale New Haven Health System
    - Yale New Haven Hospital
    - Bridgeport Hospital
    - Greenwich Hospital
    - Lawrence + Memorial Hospital
    - Westerly Hospital
- Hartford Healthcare – Hartford Hospital
- Stamford Health – Stamford Hospital
- Griffin Health – Griffin Hospital
- Nuvance Health – Danbury Hospital

NOTE: The specific locations available for clinical rotation placements within the above healthcare organizations is subject to change and is dependent on the needs and availability of staffing within each site. It is common practice for a primary location to have satellite locations where students will be expected to attend a portion of their rotations; for example, rotations at Yale New Haven Hospital may be completed at the both the main York Street facility and the St. Raphael's facility and may also involve time spent at other satellite installations, as necessary.

Affiliation agreement with clinical sites: Contractual affiliation agreements are maintained with all clinical affiliate sites. The clinical facility must have enough staff so that the students do not perform service work in lieu of staff. Students can never be used to replace laboratory staff in shortage situations. Students may be employed by clinical affiliates. However, employment must be scheduled outside of clinical practice hours and must not conflict with the student's learning experience and/or performance evaluation. Service work and/or student employment cannot be used to fulfill practicum requirements. If a student wishes to work while in clinical rotation at the site, it is optional and paid.

REQUIREMENTS FOR CLINICAL PLACEMENT

To attend clinical rotations students must supply all the required documentation for the site assigned to and pay the necessary fees required for obtaining said documentation.

Required documents must be completed within specified time intervals. Students will be provided with information about specific requirements for their assigned clinical site prior to beginning their rotation experience. The financial costs of meeting any/all of these requirements are generally the responsibility of the student. If a student is not able to meet these requirements, they may not be able to complete the program's clinical experience requirements.

Clinical affiliates may require any or all of the following for participation in a clinical rotation:

1. US Citizen: United States social security number and proof of citizenship.
2. International student: current I-20 document, valid passport from country of residence, valid documentation of visa or resident alien status.
3. Successful completion of a criminal background check.
4. Successful completion of drug screenings; may be required prior to and/or during rotations
5. Medical clearance and proof of immunizations
    - May include proof of appropriate COVID-19 vaccination/booster as well as influenza and hepatitis B vaccination (either record of previous immunization or demonstration of current immunity via appropriate testing)
    - Please note that, depending on the clinical site, a religious exemption may not be accepted as an appropriate substitute for immunization.
6. Student trainee license: if required by the state where clinical practicum experience is assigned.
7. HIPPAA and safety training
8. CPR certification
9. Attendance at facility-specific orientation session(s)

NOTE: This is not an exhaustive list of all possible requirements; please contact the program Clinical Coordinator for specific details of requirements for clinical affiliates, as needed.

Schedule and Hours

The current standard schedule for clinical rotations is as follows:

- Fall semester: Tuesday and Thursday each week, for a minimum of 10 weeks of the semester.
- Spring semester: Monday through Thursday each week, for a minimum of 13 weeks of the semester.

Students should expect to be on site for a standard 8-hour workday (typically 8.5 hours total, with a 30-minute break). Start times may be anywhere from 6:00 AM to 8:30 AM, depending on the area of the lab and the bench assignment for that day. Students should plan to be on site for the whole workday for the length of their rotation assignments.

Housing and Transportation

Although some clinical sites are nearby the University, other clinical sites may not be. The student is responsible for acquiring appropriate housing in the case of being assigned to a clinical site that is not close to the university or university housing.

Coordination of transportation to the assigned clinical site and all associated financial arrangements are also the responsibility of the student. Although every student is assigned to a primary clinical site, many sites will include rotations at multiple locations, as determined by the clinical facility. Thus, students must plan to travel to other locations. Neither the University nor the clinical site is responsible for supplying transportation.

CERTIFICATION EXAMS

Eligibility

The Medical Laboratory Science Program is designed to meet the eligibility requirements for USMLS Certification. This certification is offered through the American Society for Clinical Pathology (ASCP) Board of Certification (BOC).

Upon successful completion of the MLS Program, the student will be eligible to sit for this examination and is expected to become certified within 3 months or as soon as is practical.

Application form

Eligible applicants must submit an online application for the ASCP examination. For US Certification information and instructions on how to apply, please go to: ASCP Certification Information

Fee

Payment of an application fee is required upon submission of the online application. The cost ofthe Board of Certification (BOC) examination is determined by the agency (ASCP) and is currently as follows:

BOC (ASCP) MLS Exam: $240.00 (as of 6/13/22)

(Application fee is subject to change without notice)

International Certification and State Licensures

Some states require a license to work, which may require successful completion of additional coursework, clinical practicum time, or a state-administered examination. The MLS Program does not guarantee provision of appropriate course work/experience/practica to meet certificationor licensure requirements other than those of the ASCP. It is the student's responsibility to complete the additional requirements necessary to work in these states. Each state provides its own guidelines for licensing, which are available on state agency websites such as the state specific department of health.

For additional information on states licensure see: ASCLS - Licensure Information

Certification exam schedule

The ASCP BOC exam is offered as a computer adaptive test (CAT) through the year and at designated examination sites.

For scheduling information see: ASCP BOC

Student Responsibility

Each eligible student handles all aspects of the ASCP BOC exam. Student responsibilities include accessing the application on-line (see link below), paying the exam fee, scheduling the exam, transportation to the testing site, consequences for tardiness or absenteeism, and retakes ifhe/she fails the exam. Please follow all the instructions as indicated on the testing website.

To apply online go to: ASCP BOC Application

OPERATIONAL POLICIES

The **UNewHaven** MLS program follows fair practices:

- Student recruitment and admission will be non-discriminatory per existing governmental regulations and those of the sponsor.
- Faculty recruitment and employment practices will be non-discriminatory following existing governmental regulations and those of the sponsor.
- The granting of the degree or certificate will not be contingent upon the student passing any type of external certification or licensure examination.
- A teach out plan will be developed and sent to NAACLS within 30 days of the official announcement of the closure of the program.
- Service work by students in clinical settings outside of academic hours will be noncompulsory.
- Students may not be substituted for regular staff during their student experiences.

Equal Opportunity and Non-Discrimination Policies

The University of New Haven is committed to achieving a diverse and pluralistic community that reflects the multiracial and culturally diverse society in the United States through strict non-discrimination in admissions, educational programs, and employment. The commitment to Affirmative Action is also a commitment to be proactive in the continuing effort to diversify the faculty, staff, and the student body at the University. The University will base decisions on employment so as to further the principle of equal employment opportunity.

Refer to the linked pages for more information about UNewHaven Equal Opportunity Statements and Title IX information.

Student Accessibility Resources

The University of New Haven takes great pride in the accomplishments, both personal and academic, of its many students and alumni. In keeping with this ideal, the University is committed to providing equal access for individuals with disabilities to all of its programs and services. This commitment embodies the University's determination to ensure the inclusion of all members in its community and is consistent with legal requirements of both Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act ("ADAAA") of 2008.

The Accessibility Resources Center ("ARC") provides comprehensive supports and a range of services that serve to promote educational equity and ensure that students are able to participate in the opportunities available at the University of New Haven.

To sustain this objective, students are expected to exercise a significant degree of independence while also being encouraged to utilize the resources of the Accessibility Resources Center as well as other campus resources to the degree the student determines necessary to obtain academic, social, and career goals. The Accessibility Resources Center is available to assist students as the need arises.

PROGRAM CLOSURE TEACH OUT PLAN

NAACLS requires the program to have a "teach out" plan in case the program unexpectedly closes due to natural or unnatural disasters or permanent closure. Intentional closure of the program will be communicated to all students at once. In case of disaster the university will inform students ofa plan for continuation of their education as soon as that information is available. NAACLS will be notified and a teach out plan will be provided to them within 30 days of the official announcement of program closure.

Prospective students:

- In the case of permanent closure students will be informed that the program will not takea new cohort due to program closure.
- In the case of a natural or unnatural disaster the program will work with other laboratory science programs to continue education and training until training can resume at the college.
- Students will be counseled in applying to other local programs.
- Program closure information will be posted on the program website.

Current students:

- Students will be informed of program closure.
- In the case of a natural or unnatural disaster the program will work with other laboratory science programs to continue education and training until training can resume at the college.
- In case of a mandated permanent closure currently enrolled students will be allowed to complete program.
- The Program Director will be designated to clear students applying for the certification exam.

PROFESSIONAL MEMBERSHIPS

Students are encouraged to enroll as student members in one or more of the professional organizations within MLS. The organizations serve to meet the interests and needs of the members including continuing education and information on laws and regulations pertinent to the field. Many of these organizations offer student membership rates and students are entitled toall privileges and benefits designated to the student member. This includes the receipt of professional journals, announcements of local, regional, and national meetings, and bulletins.

Following is a list of some of the membership agencies and phone numbers:

American Society for Clinical Laboratory Science (ASCLS)

1861 International Drive, Suite 200. McLean, VA 22102

Ph. 571.748.3770

www.ascls.org

American Society for Clinical Pathology (ASCP)

33 W. Monroe Suite 1600. Chicago, IL 60603

Ph: 312-541-4999

www.ascp.org

American Association for Blood Banks (AABB)

8101 Glenbrook Road. Bethesda, MD 20814

Ph: 301-215-6489

www.aabb.org

American Association for Clinical Chemistry (AACC)

1850 K Street, NW, Suite 625. Washington, D.C. 20006

Ph: 800-892-1400

www.aacc.org

American Society for Microbiology (ASM)

1752 N. Street N.W. Washington, D.C. 20036-2904

Ph: 202-737-3600

www.asm.org

APPENDIX A – Admission Criteria and Procedures

UNewHaven Medical Laboratory Science (MLS) Graduate Program Admission Criteria and Procedure

Application Requirements for Graduate Students
Master's Application Checklist

- Online application
- $50 non-refundable fee
- Official university transcripts and proof of bachelor's degree completion. An explanation of your university grading system must also be provided along with your transcripts.
- Two letters of recommendation from your professors or employers
- A "Statement of Purpose is required." A résumé is highly recommended.
- The MS in MLS does not currently require GRE test scores, but recommends submission of scores if they are available.
    - GRE School Code: 3663
    - See GRE/GMAT section on the website linked below for more information.
- An interview is not required but may be requested if deemed appropriate by the program.
- Other materials not listed here may be requested.

INTERNATIONAL STUDENTS:
Additional Requirements for International Students

- A Checklist for International Students

For more information, please refer to: https://www.newhaven.edu/admissions/graduate/apply/

Or contact the office of graduate admissions for assistance.
(203) 932-7440
graduate@newhaven.edu

APPENDIX B – Acknowledgement of Program Requirements

University of New Haven Medical Laboratory Science Program Verification of Eligibility Form

Technical Standards/Essential Functions required for the MLS program:

Technical Standards/Essential Functions required for successful completion of the MLS program at the University of New Haven are:

Professional Skills

- Maintain professional decorum and composure in a wide variety of situations.
- Maintain confidentiality and integrity.
- Follow directions, be able to make decisions, prioritize tasks, and work on multiple tasks simultaneously.
- Work independently and in cooperation with others.
- Apply acquired learned skills and knowledge to new situations.
- Work with potential biologic, chemical, radiologic, mechanical, and electrical hazards.
- Maintain personal hygiene and neatness appropriate to the professional workplace.
- Achieve regular, reliable, and punctual attendance at classes and regarding their clinical responsibilities.

Communication Skills

- Communicate effectively and efficiently with coworkers and members of the healthcare team.
- Read and comprehend written material.
- Record information accurately and clearly.

Technical Skills

- Complete fine repetitive movements such as pipetting
- Manipulate lab instruments.
- Demonstrate proficiency to work with flammable and infectious materials, hazardous chemicals, and electrical equipment.
- Demonstrate proficiency in all areas of the clinical lab.
- Work in areas with distracting noises, unpleasant odors and in close proximity to fellow workers.
- Perform all diagnostic procedures in the clinical lab.
- Perform delicate manipulations of clinical specimens, clinical lab equipment, tools, and instruments.
- Perform diagnostic procedure and venipuncture safely and accurately.
- Adhere to universal precaution measures and meet safety standards applicable to the clinical laboratory.
- Accurately identify, describe, and record fine details of clinical specimens both macroscopically and microscopically,
- Read and interpret charts, graphs, and labels.
- Read and interpret instrument panels and printouts.
- Independently perform all aspects of diagnostic procedures in the clinical lab and report results accurately and timely.

Student Acknowledgement of Technical Standards/Essential Functions

I have read and understood the Technical Standards/Essential Functions required for successful completion of the MLS program at the University of New Haven. I am aware that failure to meet any of the Technical Standards/Essential Functions may result in dismissal from the program.

Read the UNEWHAVEN MLS Handbook Date: _____

Met with Program Director or Assistant Director Date: _____

Student: _____
PRINTED NAME

Student: _____ Date: _____
SIGNATURE

Program/Assistant Director: _____
PRINTED NAME

Program/Assistant Director: _____ Date: _____
SIGNATURE

APPENDIX C – Rotation-Specific Policies

Clinical Rotation Attendance Policy

Attendance is mandatory. Unexcused absences are not permitted.

Students **must inform** the program director/clinical coordinator, and the appropriate clinical laboratory supervisor/preceptor (to which they are assigned) of any planned absences or unplanned absence.

Students must communicate lateness or attendance to the clinical site in accordance with the specific policies of the clinical site.

Failure to communicate an absence as directed may be considered an unexcused absence and may be grounds for failure of the rotation.

Students must obtain appropriate permission for a requested absence in advance, from the course director and the clinical laboratory supervisor/preceptor.

For excused absences in a standard 4-week rotation: Students may make up missed days if performance on days attended is satisfactory and if students make up the excess days in a manner that is acceptable to the clinical site, clinical coordinator and/or the program director.

- 1-2 days: no make-up time required (if performance on days attended is satisfactory)
- 3-4 days: remediation required (per the agreement of the clinical site)
- 4+ days: repeat of rotation will be required (based on availability at the clinical site)

Frequent absences, regardless of the reason, may be used as one component in calculating a student's overall grade.

Also, note the standard attendance policy per the UNewHaven Handbook.

Misrepresenting absences or absence requests is a breach of professional ethics and will be treated as an Academic Integrity Violation.

Affective Behavior And Technical Performance Evaluation

PRECEPTOR INSTRUCTIONS FOR COMPLETING THE AFFECTIVE EVALUATION:

For each component, please mark which of the following descriptors is the most appropriate, based on observations made throughout the student's rotation.

A: Always – Student demonstrates the behavior on a consistent basis and without the need for being reminded.

S: Sometimes – Student is inconsistent in their behavior or requires regular reminders to meet the stated expectations.

N: **NEVER** – The student failed to demonstrate the behavior at any point.

N/O: Not Observed – Use this column ONLY if you have not spent sufficient time with the student to accurately judge student behavior.

- **If [S] or [N/O] are marked for any behavior, please provide a brief comment, if possible, with details supporting this rating.**
- **If [N] – NEVER was marked for any behavior, YOU MUST PROVIDE A COMMENT OR EXPLANATION.**
    - ***It is expected that any behavior marked as [NEVER] at the end of the rotation has been PREVIOUSLY ADDRESSED TO THE UNIVERSITY CLINICAL COORDINATOR. This form should not be the first time this issue is being documented.***

CLINICAL DEPARTMENT: _____

Student Name: _____

Preceptor Name: _____

Preceptor Signature: _____ Date: _____

For any questions, concerns, or issues regarding UNH clinical rotations, please contact:

Beth Rawson, MS, MLS(ASCP)SH
ASSISTANT DIRECTOR | LECTURER | CLINICAL COORDINATOR, MEDICAL LABORATORY SCIENCE
School of Health Sciences, University of New Haven
Email: brawson@newhaven.edu
Phone: 203-479-4707 (office)

PROFESSIONAL BEHAVIORS					
ATTITUDE and ENGAGEMENT	**A**	**S**	**N**	**N/O**	**COMMENTS**
1. Displays, through appropriate professional/workplace behavior and performance, recognition and respect for honest laboratory testing, patient confidentiality, and high-quality patient outcomes.					
2. Demonstrates the ability to ask pertinent questions or for assistance if needed.					
3. Follows established policies and procedures of the clinical site and university.					
4. Complies with the established dress code policy as outlined in the clinical practicum manual.					
5. Reports to the laboratory at the scheduled time.					
6. Notifies the University Clinical Coordinator and the Clinical Site Coordinator when unable to report to the clinical practicum.					
7. Complies with the attendance policy as outlined in the student handbook.					
8. Maintain composure and work quality under stressful conditions.					
9. Complies with both written and verbal instructions.					
10. Demonstrates the ability to work independently within student guidelines.					
11. Communicates courteously, effectively, and professionally with instructors, laboratory staff, other health care personnel.					
12. Demonstrates interest and enthusiasm for the clinical laboratory science profession.					
13. Demonstrates concern for professional self-image and that of the medical laboratory science profession by practicing ethical behavior.					
14. Accepts evaluation of performance as constructive when offered by instructors and other laboratory personnel and follow through with suggestions made.					
15. Observes and complies with all HIPAA regulations and maintain the confidentiality of all privileged information.					
16. Accepts both leadership of supervisory personnel and criticism appropriately.					
17. Cooperates with other laboratory personnel to create a pleasant and efficient work environment.					

GENERAL LABORATORY SKILLS					
TECHNICAL	**A**	**S**	**N**	**N/O**	
1. Recognizes technical problems and plans/attempts corrective action.					
2. Utilizes reagents and supplies judiciously.					
3. Maintains a clean, organized work area.					
4. Assists preceptor with general tasks as needed, such as restocking, documentation, workflow management/ triage, and maintenance.					
5. Observes site policies on data management and data security.					
6. Demonstrates organizational skills through ability to coordinate the quantity of work needed to be done with the time available for its completion.					
7. Practices acceptable quality assurance as established for each clinical area.					
8. Coordinates theory with laboratory analysis to appropriately judge and interpret patient data.					
9. Demonstrates self-confidence in the operation of equipment and in the performance of laboratory procedures, under the supervision of appropriate clinical site personnel.					
10. Recognizes and applies site policies for identification and reporting of critical values.					
11. Reports patient laboratory results only to authorized personnel, and only under the supervision of appropriate clinical site personnel.					
12. Demonstrated the ability to operate a centrifuge safely.					
13. Demonstrated the ability to competently use a microscope.					
14. Demonstrated the ability to choose and appropriately use pipettes.					
15. Demonstrated the ability to properly apply laboratory math functions (i.e., in creating dilutions/serial dilutions, for reagent preparation, etc.)					

SAFETY Observes/follows all safety protocols and procedures, including but not limited to:	**A**	**S**	**N**	**N/O**	
16. Use of appropriate PPE.					
17. Use of appropriate engineering controls.					
18. Follows Standard Precautions when handling specimens.					
19. Performs handwashing at appropriate times.					
20. Is aware of and responds appropriately to environmental hazards (physical, electrical, fire, trip, etc.).					
21. Handles all kinds of waste correctly (biohazardous, sharps, general).					

Please comment on any [S] or [N/O] responses.
A COMMENT MUST BE PROVIDED FOR ANY [N] RESPONSES.

PLEASE NOTE:
Checking off "NEVER" for any of these behaviors/competencies will automatically result in a conference between the student and the university clinical coordinator and may include the site preceptor and/or the program director.

- Depending on the behavior/competency, a response of "SOMETIMES" or "NOT OBSERVED" may also result in a student conference.

*****A "NEVER" response on the affective evaluation may result in anything from counseling, a reduced grade for the rotation in question, repeating the clinical rotation, removal from the clinical site, failing the clinical rotation, all the way up to and including removal/expulsion from the MLS program.*****

APPENDIX D – MLSC Course Descriptions and Major Map

MLSC 6600 Phlebotomy and sample processing

In this course, students will be introduced to medical terminology including an overview of common prefixes, suffixes, and root words that are used in the field. The course will include quality assessment as it relates to specimen collection; infection control; role of the phlebotomist; blood collection procedures, non-blood specimen collection practices; sample transportation, processing, and management; medical and legal ethics as they relate to phlebotomy services. **2 credits.**

MLSC 6610 Lab Operations, Regulations and Compliance

This course introduces the theory and evaluation of basic laboratory management principles in healthcare, including quality assessment (QA) and safety. The course will emphasize real world situations and applications to laboratory management including quality management (QM) and laboratory improvement initiatives, ethics, point-of-care, hiring, credentialing and personnel issues, laboratory regulations, proficiency testing, competency assessment and accreditation standards, quality control (QC), and laboratory information management (LIM). Professionalism, ethics, and continuing education will also be discussed as they relate to laboratory personnel. Students will be exposed to laboratory standard operating procedures, laboratory policies, and safety procedures. **3 credits.**

MLSC 6611 Clinical Chemistry

Clinical chemistry is an area in which changes occur frequently due to the introduction of new technologies and sophisticated instrumentation. This course focuses on the theory, practical application, technical performance, and evaluation of basic laboratory skills, methods, analytical techniques, and on some common automated technologies used in clinical chemistry. Emphasis will be placed on the interpretation, evaluation, and correlation of clinical laboratory data as it relates to the diagnosis, treatment, and monitoring of carbohydrate, renal, hepatic, protein and other nitrogen-containing compounds, heme-derivatives, cardiac, lipid/lipoprotein, major and minor electrolyte, enzyme, pancreatic-gastrointestinal and acid-base disorders. Other topics to be discussed include endocrinology, vitamins and nutrition, therapeutic drug monitoring, and toxicology. **4 credits.**

MLSC 6612 Immunohematology and Transfusion medicine

This course will provide students with an introduction to the theory and practical application of methods that are required for routine blood bank practices in order to provide compatible blood components for transfusion. These include the collection, processing, storage, and transfusion of blood and blood components, blood group systems, blood group immunology, physiology and pathophysiology, serology and molecular testing, and transfusion practice. The course will also introduce immunohematology procedures that are used in the diagnosis and management of hemolytic disorders. **3 credits.**

MLSC 6613 Clinical Bacteriology for Medical Laboratory Science

This course will include the study of the most clinically important bacterial pathogens encountered in the clinical laboratory, and will emphasize the correlation of clinical laboratory data with the patient's diagnosis and treatment. Emphasis will be placed on use of organism characteristics to identify common bacteria (morphologic, cultural, and biochemical traits; pathogenesis, pathology, epidemiology, risk factors), the analytical procedures for bacteriology, susceptibility of microorganisms to various antimicrobial agents and reporting results to healthcare providers, infection control/prevention and public health authorities. **4 credits.**

MLSC 6614 Hematology with Laboratory

This course will cover fundamental concepts in human hematology including the study of the production, function, and physiology of red and white blood cells, body fluids and bone marrow, the evaluation of red cell morphology and disease processes that lead to abnormal red cell morphology such as anemias and thalassemias; white blood cell differentiation and disorders and classification of leukemias. There will be an emphasis on identifying normal and abnormal WBC and RBC and indices. Course will include an overview of general hematological methods and automation used in the diagnosis of blood cells disorders, with practice of some basic manual procedures. Correlation of clinical laboratory data with the diagnosis and treatment of erythrocyte and leukocyte disorders will be emphasized. **4 credits.**

MLSC 6615 Clinical Mycology, Parasitology, and Virology

A thorough study of clinical parasitology, mycology, and virology. Included are taxonomy and structure, specimen collection and cultivation techniques, life cycles, reproduction, epidemiology and disease pathogenesis, microbial virulence, identification, and control. It will cover the correlation of clinical laboratory data with the patient's diagnosis and treatment. Emphasis will be placed on the analytical procedures for mycology, parasitology, and virology and post analytic procedures including reporting to infection control/prevention and public health. **3 credits.**

MLSC 6616 Blood Coagulation, Hemostasis and Urinalysis

This course will cover the basic principles of hemostasis including the vascular component, platelet physiology and function, coagulation factors, fibrin clot formation, and fibrinolysis. Hereditary and acquired forms of hemorrhagic disorders and thromboembolic disease are examined along with the test procedures for their diagnoses and the initiation and testing methods of therapy. The course will also cover the physical, chemical, microscopic analysis, and disease states of urine and other body fluids. **4 credits.**

MLSC 6631 Clinical Seminar I

Prerequisites and/or co-requisites: MLSC 6600, MLSC 6610, MLSC 6641, MLSC 6651, MLSC 6611, MLSC 6612, MLSC 6613, MLSC 6614, MLSC 6615, MLSC 6616.

This course will prepare medical laboratory science students for the ASCP certification exam. Students will be provided with testing strategies and practice exams using various materials. Students will complete some exams during class time and online. Results from the exams will be used for the course grade. A grade of 80% or greater is required to pass the class. Exams will be reviewed to determine areas of weakness. This course will review all the medical laboratory science required courses completed in the previous year. **2 credits.**

MLSC 6632 Clinical Seminar II

Prerequisites or co-requisites: MLSC 6631, MLSC 6642 , MLSC 6652.

This course will prepare medical laboratory science students for the ASCP certification exam, as well as cover a variety of professional skills. Students will be provided with testing strategies and practice exams using various materials. Students will complete some exams during class time and online. Results from the exams will be used for the course grade. A grade of 80% or greater is required to pass the class. Exams will be reviewed to determine areas of weakness. This course will review all the medical laboratory science required courses. **3 credits.**

MLSC 6641 Clinical Practicum I

Prerequisites or co-requisites: matriculating student in the medical laboratory science program; MLSC 6631, MLSC 6651.

This component of the medical laboratory science program prepares students for practice in a clinical laboratory. It involves a rotation in the clinical laboratory at an affiliated licensed clinical laboratory hospital and is designed to enhance the student's entry level competencies. During the rotation, the student will be exposed to the daily operations of the laboratory under the supervision of a certified experienced medical laboratory scientist. **2 credits.**

MLSC 6642 Clinical Practicum II

Prerequisites or co-requisite: MLSC 3310, MLSC 3350, MLSC 4410, MLSC 4420, MLSC 4450.

This course is the final component of the medical laboratory science program and prepares students for practice in a clinical laboratory. It involves a semester-long rotation in the clinical laboratory at an affiliated licensed clinical laboratory hospital and is designed to enhance the student's entry level competencies. During the rotations, the student will be exposed to the daily operations of the laboratory under the supervision of a certified experienced technologist. Clinical rotations include hematology, clinical chemistry, coagulation, urinalysis, microbiology, and immunohematology. **6 credits.**

MLSC 6651 Capstone Project I

Co-requisites: MLSC 6631, MLSC 6641

This course involves the development of a capstone project in any area of the clinical laboratory. The student is expected to integrate and synthesize knowledge acquired through didactic courses and/or during the clinical rotation in the medical laboratory science program. Emphasis is on research design, process, measurement, management, regulatory issues, and ethics, as used by investigators in the field. **3 credits.**

MLSC 6652 Capstone Project II

Prerequisite or co-requisite: MLSC 6651, MLSC 6632, MLSC 6642.

This course involves the completion of a research project in any area of the clinical laboratory. The student is expected to integrate and synthesize knowledge acquired in the didactic courses and/or during the clinical rotation of the medical laboratory science program. Emphasis is on research design, process, measurement, management, regulatory issues, and ethics, as used by investigators. **3 credits.**

2022-2023 ACADEMIC WORKSHEET

UNIVERSITY OF NEW HAVEN — **Medical Laboratory Science - Graduate Program**

Student Name (Last, First, M.I.) ID# Major GPA

TRANSFER CREDI

ADVISOR:

CODE		CR	SEM	GR	QP	MAJOR	CODE		CR	SEM	GR	QP	MAJOR
	FALL 1						**SPRING 1**						
	MLSC 6610 Lab Operations, Regulation and Compliance	3						MLSC 6611 Clinical Chemistry	4				
	MLSC 6600 Phlebotomy and sample processing	2						MLSC 6614 Hematology with lab	4				
	PUBH or HCAD elective - create list of options	3						MLSC 6612 Immunohematology and transfusion me	3				
	PUBH or HCAD elective - create list of options	3						MLSC 6613 Clinical Bacteriology for Med Lab Sci wi	4				
	SEMESTER TOTAL:	11						SEMESTER TOTAL:	15				
	FALL 2						**SPRING 2**						
	MLSC 6616 Blood coagulation, Hemostasis and Urinalysis v	4						MLSC 6650 Graduate Capstone Project II	3				
	MLSC 6641 Clinical practicum I	2						MLSC 6632 Clinical Seminar II Education	3				
	MLSC 6631 Clinical Seminar I Education	2						MLSC 6642 Clinical practicum II	6				
	MLSC 6615 Clinical Mycology, Parasitology, Virology	3											
	MLSC 6651 Graduate Capstone Project I	3											
	SEMESTER TOTAL:	14						SEMESTER TOTAL:	12				
								FINAL TOTAL:	52				

Note: molecular biology and immunology - PREREQ

APPENDIX E – Program Faculty

Carleta Maurice, MS, MT(ASCP)
Program Director, Practitioner in Residence
Email: cmaurice@newhaven.edu
Phone: 203-479-4713

Beth Rawson, MS, MLS^{CM}(ASCP)SH^{CM}
Assistant Director and Clinical Coordinator, Lecturer
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