Bachelor of Science in Medical Laboratory Science

STUDENT MANUAL

Medical Laboratory Science Program

College of Health Professions

Grand Valley State University

January 2026

This student manual will be superseded by all versions bearing subsequent dates.

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MEDICAL LABORATORY SCIENCE PROGRAM

MISSION STATEMENT:

The Medical Laboratory Science program provides a learning environment that enables medical laboratory science students to become competent laboratory professionals.

VISION STATEMENT:

Through the acquisition of the theoretical knowledge and technical skill, medical laboratory science students will provide quality laboratory services that embody equitable, socially just, and ethical health care.

VALUES:

- Professional and ethical behavior
- Life-long learning
- Collaborative practice
- Social responsibility
- Inquiry

MEDICAL LABORATORY SCIENCE ACCREDITATION

The Medical Laboratory Science program is accredited by The National Accrediting Agency for Clinical Laboratory Sciences:

NAACLS
5600 N. River Road
Suite 720
Rosemont, IL 60018
Phone: 773-714-8880

MEDICAL LABORATORY SCIENCE PROGRAM GOALS:

The program goals for the Medical Laboratory Science program represent the guiding principles of the curriculum.

Program Goal I: Demonstrate entry level competency in the clinical laboratory.

Program Goal II: Communicate effectively.

Program Goal III: Develop critical thinking and problem-solving skills.

Program Goal IV: Demonstrate professional behavior.

MEDICAL LABORATORY SCIENCE STUDENT COMPETENCIES:

The Grand Valley State University Medical Laboratory Science Program graduate will be able to:

- Function as a knowledgeable and competent Medical Laboratory Scientist.
- Follow procedures for collecting, processing, and analyzing biological specimens and other substances.
- Perform analytical test of body fluids, cells and other substances
- Integrate and relate data generated by the various laboratory departments while making decisions regarding possible discrepancies.
- Perform quality control procedures, analyze quality control data, and execute corrective action as necessary.
- Interpret and act upon the results of quality control and quality assurance measures, and institute proper procedures to maintain accuracy and precision.
- Perform preventive and corrective maintenance on instrumentation.
- Be compassionate and understanding when dealing with patients and staff, keeping patient's wellbeing foremost in mind.
- Collaboratively practice within the laboratory and with other members of the healthcare team.
- Recognize responsibility for his/her own continuing education.
- Provide leadership in educating other health personnel and the community.
- Exercise principles of safety.
- Apply principles of current information systems.
- Successfully pass the national certification exam.*

* Please note: The issuing of a Baccalaureate degree in Medical Laboratory Science by GVSU is not contingent upon the student passing an external certification examination.

MEDICAL LABORATORY SCIENCE ESSENTIAL FUNCTIONS

A student must be able to perform the following essential requirements to complete the activities necessary to obtain credit for the clinical education:

- Characterize the color, consistency and clarity of biological specimens or reagents.
- Employ a clinical grade binocular microscope to discriminate among fine differences in structure and color (hue, shading, and intensity) in microscopic specimens.
- Read and comprehend (English) text, numbers and graphs displayed in print and on a video monitor.
- Move freely and safely about a laboratory.
- Perform moderately taxing continuous physical work, often requiring prolonged sitting or standing over several hours.
- Reach laboratory bench tops and shelves, patients lying in hospital beds or patients seated in specimen collection furniture.
- Maneuver phlebotomy equipment to collect laboratory specimens from patients.
- Control laboratory equipment (i.e., pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
- Manipulate an electronic keyboard (i.e., IBM computer keyboard) to operate laboratory instruments and to calculate, record, evaluate, and transmit laboratory information.
- Read and comprehend technical and professional materials (i.e., textbooks, magazine and journal articles, handbooks and instruction manuals).
- Follow oral and written instructions in order to correctly perform laboratory test procedures.
- Clearly instruct patients prior to specimen collection.
- Effectively, confidentially, and sensitively converse with patients regarding laboratory tests.
- Communicate with faculty members, student colleagues, staff and other health care professionals orally and in a recorded format (writing, typing, graphics or telecommunications).
- Be able to manage the use of time and be able to systematize actions in order to complete professional and technical tasks within realistic constraints.
- Possess the emotional health necessary to effectively use their intellect to exercise appropriate judgment. The student must be able to provide professional and technical services while experiencing the stresses of task-related uncertainty (i.e., ambiguous test ordering, ambivalent test interruption), emergent demands (i.e., “STAT” test orders), and a distracting environment (i.e., high noise levels, complex visual stimuli).
- Be flexible, creative and adapt to professional and technical change.
- Recognize potentially hazardous materials, equipment and situations and proceed safely in order to minimize risk of injury to self and nearby personnel.
- Be honest, compassionate, ethical and responsible. The student must be forthright about errors or uncertainty. The student must be able to critically evaluate their own performance, accept constructive criticism and look for ways to improve (i.e.,

participate in continuing education activities). The student must be able to evaluate the performance of colleagues and professionals and tactfully offer constructive comments.

If you are unable to meet the Essential Functions, please contact the Program Director to discuss needed accommodations.

MEDICAL LABORATORY SCIENCE PROGRAM

AFFECTIVE BEHAVIOR OBJECTIVES

The following objectives will be reinforced in every MLS course and assessed in the MLS clinical practicum:

I. The student will demonstrate good organizational skills by:

a. Completing assignments by due dates.
b. Handling multiple tasks efficiently.
c. Correctly prioritizing multiple tasks.
d. Working at a pace that is compliant with the acceptable "turn-around-time" expected of entry-level technologists.

II. The student will demonstrate responsibility, dependability, and initiative by:

a. Completing routine tasks without reminders.
b. Arriving punctually and departing at appropriate times.
c. Readily undertaking procedures requested in his/her area of responsibility with little or no additional instruction.
d. Staying past scheduled hours to complete assigned tasks in progress, if necessary, or communicating the status to the appropriate person.
e. Helping others with workload in progress when appropriate.
f. Showing perseverance when workload or assignments are challenging.
g. Using down-time for professional or intellectual growth.

III. The student will demonstrate flexibility and adaptability by:

a. Changing current activities to meet a more immediate demand, awareness of priorities.
b. Adapting to new, different or changing requirements.

IV. The student will demonstrate good communication and interpersonal skills by:

a. Maintaining confidentiality of all patient information and results.
b. Cooperating with others and willingly accepting assigned responsibilities.
c. Handling phone calls and communication with patients and health care personnel with efficiency, courtesy, poise and tact.
d. Demonstrating learning from mistakes and/or misunderstood/mishandled situations by not repeating the same mistakes.
e. Allowing others to work without frequent conversational interruptions.
f. Listening attentively, asking questions or giving indications/acknowledgement to assure understanding when instructions/information are given.
g. Using the computer system with integrity and according to policy.

V. The student will exhibit initiative and motivation by:

a. Demonstrating a desire to learn the rationale behind the procedures and seeking the answers independently.

b. Showing desire to take advantage of learning activities beyond required assignments and, when schedule permits, attends in-services, grand rounds and other educational activities.

VI. The student will exhibit the ability to work in the clinical lab environment and handle stress by:

a. Maintaining composure with new or difficult situations.
b. Showing acceptance of constructive evaluation regarding his/her thinking process or actions by making modifications to arrive at a proper outcome.
c. Acting deliberately and systematically when under pressure and projects confidence.

VII. The student will demonstrate appropriate problem recognition and effectively resolve issues according to the following criteria:

a. Appropriately gathering available data necessary to make a decision or solve a problem.
b. Correctly analyzing gathered data prior to making a decision.
c. Correctly correlating information in problem solving.
d. Recognizing problems they cannot handle and seeking help from other laboratory professionals.
e. Automatically checking unexpected or abnormal results.
f. Defusing tense interpersonal situations by being tactful, polite and considerate.

VIII. **The student will demonstrate growth and development, both personally and professionally, by:**

a. Applying previously learned knowledge and prior experience to current situations.
b. Carrying out recurring responsibilities with a decreasing amount of supervision.

IX. The student will demonstrate knowledge of the subject and application of knowledge to practice by.

a. Performing procedures accurately.
b. Recognizing abnormal results and following the procedure of reporting them.
c. Recognizing errors in procedure, methodology and results and taking the appropriate corrective action.
d. Correctly correlating results with probable diagnosis.
e. Attaining required entrance level competencies.
f. Applying previously learned knowledge and prior experience to current situations

X. The student will demonstrate the importance of adhering to safety rules and regulations by:

a. Following all safety regulations and dress codes.
b. Leaving the work area in clean, orderly condition.
c. Following protocol for equipment operation and maintenance.

GVSU MEDICAL LABORATORY SCIENCE PROGRAM POLICIES

Medical Laboratory Science is a 1½ -year program leading to a Bachelor of Science in Medical Laboratory Science. The issuing of a Baccalaureate degree in Medical Laboratory Science by GVSU is not contingent upon the student passing an external certification or licensure examination.

Academic Standards

Students in the MLS program must earn a minimum of a 73% average in all MLS professional courses in order to continue in the program. Students earning below 73% in a course have a single chance to remediate in that course. Remediation must occur within one week after completion of the course and will consist of additional time and work followed by taking a new cumulative final exam in that course. A score of 80% or higher on the remediation exam is required but will not be used in the calculation of the final grade for the course. Students not earning a score of 80% may not be allowed to continue in the program. (NOTE: a student may not be allowed to begin their clinical rotations until remediation is completed.) Students are responsible for scheduling their remediation exam with the course instructor. The final remediation/continuation decision will be determined on the evaluation of overall student performance in a course and on a case-by-case basis.

Credit/no credit will be issued for the clinical practicum course, MLS 492. In order to pass individual rotations within MLS 492, students must meet minimum competencies as reported by their preceptor and pass the corresponding clinical rotation exam with a 70% or better. Remediation, in the form of repeating the rotation or exam, is available for students not achieving this level. A maximum of two (2) clinical rotations can be remediated by any one student. If a student fails to pass three clinical rotations, they will be removed from the MLS program. Failure to pass a remediation for a single clinical rotation will result in removal from the MLS program. Each rotation exam can be remediated once, requiring a minimum score of 70%. If upon remediation of a rotation exam a student receives a score of less than 70%, they will have one opportunity to complete an alternative assignment. A second failed remediation for the failed exam will result in removal from the program.

Policy on Reapplication to the MLS Program

Students who do not successfully pass a professional MLS course and subsequently fail the required remediation are eligible to reapply to the program one time only. This one-time reapplication opportunity is intended to support student success while maintaining program integrity and timely progression.

Important Conditions:

- Students may only reapply once after an unsuccessful attempt in a course and remediation.
- A second unsuccessful attempt (including remediation) will result in ineligibility for reapplication.

- Students who attempt to reapply beyond this limit would exceed the program's maximum completion timeframe of less than four (4) years for all professional courses and program requirements.

Clinical Rotation Dismissal:

- Students who are dismissed or removed from clinical rotations for any reason are not eligible to reapply to the MLS program. Clinical dismissal reflects a failure to meet essential professional and ethical standards required for MLS practice.

Grievances and Appeals

Students should submit all grievances and appeals directly to the MLS instructor and include the program director. The policy and procedure for advancing a grievance if a solution is not to the student's satisfaction is defined in the GVSU Undergraduate and Graduate Catalog .

Conferences and Seminars

Students are required to attend the American Society for Clinical Laboratory Science–Michigan (ASCLS-MI) Chapter Conference. Students are also encouraged to attend hospital in-service educational programs when offered and appropriate. Although outside funds may be available through scholarship, grants, and student organization fundraising, the cost to attend the conference is the responsibility of the student. This may include registration, accommodations, and transportation to and from the conference. Faculty will actively seek grant and funding opportunities when available to help offset associated costs; however, students are ultimately responsible for any remaining expenses related to conference attendance or professional development activities.

Standards of Conduct

Students are expected to follow the undergraduate academic policies and regulations as printed in the GVSU Undergraduate & Graduate Catalog. The principles of truth and honesty are recognized as fundamental to a community of teachers and scholars. The university expects that both faculty members and students will honor these principles during their time at GVSU and in so doing protect the validity of university grades and demonstrate professional behavior attributes. This means that all academic work will be done by the student to whom it is assigned without unauthorized aid of any kind. Instructors, for their part, will exercise care in the planning and supervision of academic work, so that honest effort will be positively encouraged. Students are expected to exhibit behaviors that are consistent with the values of, and non detrimental to, the university community as described in the GVSU Student Code: The Anchor of Student Rights and Responsibilities. Program officials will follow the university's disciplinary procedures as outlined in the GVSU Student Code: The Anchor of Student Rights and Responsibilities.

If, during a clinical practicum, a student violates a professional or ethical code of a clinical site, the student's practicum will be terminated immediately. A grade of NC (no credit) will be issued and students will not be allowed to continue in the program.

Dismissal from the University
The Medical Laboratory Science program officials are under no obligation to assist students who have been dismissed from the University, whatever the reason for their dismissal. However, the program officials may initiate a process to decide whether or not to support the student's application for readmission to the University. During this process, the MLS program officials may decide not to support the student's appeal for readmission. The student then may appeal for reinstatement without the program's support.

Health and Safety
Students must follow all safety requirements outlined in the *Safety Procedures for the Medical Laboratory Science Program* within this manual. In addition, students are required to meet all health compliance requirements and submit documentation as outlined in the GVSU Health Compliance Policy. and other applicable university health policies. Students will not be permitted to begin clinical rotations until all health compliance requirements have been fully completed and verified by GVSU's Health Compliance Office**.**

GVSU MEDICAL LABORATORY SCIENCE PROGRAM CLINICAL SITE POLICIES

Developing a skilled medical laboratory scientist depends upon both academic learning in the classroom and on completion of appropriate clinical experiences. Students enrolled in the Medical Laboratory Science program at Grand Valley State University will be assigned a clinical internship and will be required to successfully pass each rotation associated with this internship for successful completion of the MLS program and BS degree from GVSU. All students are expected to conduct themselves in a professional manner in their clinical settings. The following written policies indicate the exact elements of professional behavior and conduct required for GVSU students throughout a clinical practicum.

Any violations of these policies will be reviewed by the Program Director, Clinical Coordinator and Clinical Preceptors to determine appropriate action moving forward, which could include disciplinary action such as suspension or expulsion from the program.

Clinical Practicum Requirements
Students are required to complete clinical practicum requirements as stated in the GVSU Catalog. The MLS Clinical Coordinator works with students to ensure clinical placements for all. To meet graduation requirements, students must pass all of the rotations included in their clinical practicum course. Students are also responsible for transportation to and from their assigned clinical rotations. If a student finds the location of their assigned clinical site to be too far to commute, it is the responsibility of the student to arrange for housing and relocation closer to their placement.

Students should be aware that prior to the beginning of their clinical courses, they must complete comprehensive health compliance obligations including but not limited to a criminal background check, drug screening, vaccination history and color blindness testing. The cost and completion of these requirements are the responsibility of the student. If illegal activity is discovered in the background check/fingerprinting or evidence of prohibited substances is found in the drug test, the clinical sites have the right to refuse a student's placement, which may negatively impact a student's ability to complete the Medical Laboratory Science program at Grand Valley State University. In addition, individuals who have been charged with or convicted of a crime may not be eligible for national certification by the American Society for Clinical Pathology – Board of Certification (ASCP-BOC). Students to whom this may apply are strongly advised to work with the MLS Program Director and the ASCP-BOC for pre-application review of eligibility for certification from their website at https://www.ascp.org/content/Board-of-Certification#. The ASCP-BOC contact information: Tel: 800-267-2727; Fax: 312-541-4472.

Clinical Placement of Students

Students are assigned clinical sites by the MLS Clinical Coordinator with input from program faculty. The overall goal of MLS faculty when choosing clinical sites for students is to place every student at a clinical site where they will be successful and able to fulfill the requirements of the course. While student preferences are taken into consideration, due to limited options for clinical sites and the unique needs of each student this may result in students being placed at sites that were not their top choice. Students may be placed at a clinical site requiring a commute or relocation. Once clinical placements are assigned to students, they are final and cannot be exchanged with another student. If a student is unhappy with their clinical placement, they may attempt to find their own. However, it must have the resources to meet the objectives of each rotation and have an affiliation agreement with Grand Valley State University in place prior to the start of internship.

In the event there are not enough clinical sites to accommodate all students in a cohort, the MLS Clinical Coordinator and Program Director will enact the following policy:

Clinical placements will be delegated in the following order:

- MLS students that are closest to graduation will receive a placement first.
- A clinical lottery will take place, selecting students at random for available clinical placements.
- With the assistance of the MLS Clinical Coordinator, students may elect to secure their own clinical placement.
- Students may choose to delay their clinical experience with the knowledge that it will affect their graduation date.

If an assigned clinical site is no longer able to take a student or part of an internship is cancelled:

- The program will seek to find a replacement first within the health system from which the student previously was placed, and then outside the system.

- Alternate site/rotation options, virtual learning opportunities, and decreased rotation lengths may be utilized to meet clinical objectives for required and specialty rotations
- If a site becomes available to precept students, it will be offered to the students who still need to fulfill rotation requirements that set of objectives, regardless of where the student has housing

Attendance
The Clinical Instructor for each institution sets:

- Clinical Schedule: Clinical schedules are set by the institution at which a student is placed. Students are expected to work clinical rotation hours that align with their clinical preceptors. Typically, students will work an eight-, ten-, or twelve-hour day depending on the clinical site. Hours will be set by the clinical preceptor, with students being required to be at the clinical site an average of 36-40 hours per week. Students are notified of their schedule at the time of placement by the clinical site. It is the students' duty to treat their clinical experience as a priority and they should make every effort to schedule themselves around the given rotation time. All changes in clinical schedules must be cleared in advance with the clinical preceptor at the appropriate institution. Clinical schedules will not be adjusted to accommodate student work schedules.

- Clinical instruction: Students are under the direction of the clinical preceptors assigned to them and will perform work duties normally performed by employees only as part of their training and with direct supervision. Patient care is the priority of the teaching clinical preceptors at clinical sites and students should be prepared to offer whatever assistance they can. If the instructor gives students time to study while workload issues are being resolved, students should have academic material available for this purpose.

- Break policy: Students will follow the hospital policy for breaks and lunch. Students are required to check with the clinical preceptor before leaving the work area. Students may not leave the clinical site during the day without first notifying the clinical preceptor or the clinical preceptor's designee.

- Winter weather policy: Closure of any GVSU campus due to local weather conditions is not an automatic day off for students during their clinical internships. If a student decides that he/she will not report to their clinical site due to road conditions or weather-related issues, the student is responsible for contacting the GVSU clinical coordinator AND the clinical preceptor involved at their clinical site to notify them of their absence. In the event a student has used his/her excused absences, he/she may still opt to stay home for poor weather conditions; however, the day/time missed may be required to be made up.

- Record of Clinical Education Time: Time of arrival and time of departure from the assigned department must be recorded appropriately. Falsification of time records is considered cheating and is a breach of university and professional ethics and will merit appropriate disciplinary action.

- Absence from Clinical Education: Any absence from clinical education is classified as excused, unexcused, or tardy. Students must call their clinical site and email their GVSU clinical coordinator prior to their assigned start time to report any unplanned absence. If the student speaks with someone in the lab, he/she should obtain the name of the person taking the message. Both the clinical site AND the GVSU clinical coordinator must be notified in advance of any planned absences. If more than **three** days are missed during the 18-week clinical rotations for any reason, the time must be made up. All make up time must be completed within the rotation missed. In the unusual event that a student has several excused days of absence due to illness, injury, bereavement, or other emergencies, a make-up plan will be made at the discretion of the clinical site and GVSU clinical coordinator. Vacations will not be granted during clinical rotations, even with advance notice.
    - Excused absences:
        - Holidays are granted according to the Grand Valley State University academic calendar, with the exception of spring break. Students do not get the university spring break during their semester of clinical rotations.
        - Upon advance approval by the clinical coordinator and clinical site, the following excused absences may be granted:
            - Illness
            - Bereavement
            - Job Interviews
            - Dismissal by the clinical instructor due to inclement weather (snow or icy driving conditions).
            - Attendance at professional meetings or GVSU student activities
            - Excused leave of absence may also be granted to individuals in extenuating circumstances as determined by the Clinical Coordinator.

    - Unexcused absences: If notification is not given to both the clinical site and the GVSU Clinical Coordinator, the absence will be considered unexcused.
        - One occurrence will result in a written warning.
        - The second occurrence will result in advising with GVSU clinical coordinator and program director and may result in failure for the course with a letter grade of "NC".
        - A pattern of unexcused absence from a student may also result in corrective action at the discretion of the clinical site including suspension and/or removal from the clinical site resulting in a letter grade of "No Credit" for the course.
    - Tardiness: Tardiness is defined as arriving more than 5 minutes late, leaving 5 minutes early, or may be at the discretion of the clinical site. Clinical preceptors may

also define the exact place where arrival or departure is permitted. Tardiness of one hour or more is considered an unexcused absence.

Students are expected to adhere to the clinical schedule established by their assigned clinical site and excessive tardiness will not be tolerated. The following policy will be enforced by GVSU to promote professionalism and accountability; however, clinical sites may enforce additional or alternative corrective action at their discretion. Such consequences may include suspension or removal from clinical rotations resulting in a grade of "No Credit" for the course.

- 2nd tardy per semester – verbal warning
- 3rd tardy per semester – written warning
- 4th tardy per semester – advising with GVSU clinical coordinator and program director required
- 5th tardy per semester – failure of course with grade of "No Credit"

Criminal Background Check and Drug Screening

The Medical Laboratory Science program requires a criminal background check (CBC) and drug screening on all admitted students prior to clinical placement. Students will use the system provided by Health Compliance for tracking of their health compliance requirements, which include a drug screen and background check. The student will be responsible for all fees associated with initial sign on, as well as for the background check and drug screen. Additionally, prior to clinical placement, students will need to work with their health provider, to ensure infectious disease titers show immunity and required vaccinations are up to date (see "Health" below. Students may not begin their clinical internship until their health compliance requirements, negative drug screen, and criminal background check, have been completed and disclose that they do not present a criminal history. A positive criminal background check and/or drug screen may affect a student's eligibility for participation in clinical rotations, and program completion. Please note that participation in clinical rotations is mandatory for degree completion. Further, students already admitted into the MLS program are required to self-disclose any criminal charge or plea of no contest that occurs while in the MLS program, within 2 weeks, to the program director. A failure to self-disclose any criminal charge will result in immediate removal from the MLS program.

Suspension

Students who are suspended from clinical rotations for any reason may be accommodated in making up the clinical time missed to avoid loss of opportunity for achieving clinical competencies necessary for grades. If the student's assigned clinical site cannot or will not accommodate make-up time for the student, the student may receive an Incomplete for the course until they are able to meet course requirements for credit. In this scenario, the clinical coordinator will make an attempt to find an alternative site for the student to make up time, but cannot guarantee one.

Computer Access/Results Reporting

Students must follow the clinical site policies for computer access for patient information and reporting. All patient information obtained while interacting with data in the computer system must be kept confidential and all HIPPA rules and regulations should be followed per the clinical site. Students should not use any clinical site computer for personal use. Students should be diligent about being logged into and out of computers as appropriate to be sure not to report results or perform any actions under someone else's name.

Students must be respectful when using social media and group messaging. There should be no mention of your clinical site, clinical preceptors, fellow classmate, patients, etc. Corrective action will be taken if any posts are reported.

Disciplinary Action Policy

Medical laboratory science students are subject to clinical site policies, which assure the best care of patients and respect for clinical affiliate sites. The following sample list of problems is included to identify some of the "inappropriate behavior" (this list is not to be considered all-inclusive):

Physical violence
Cheating on an examination
Falsifying student application
Falsifying timecard
Criminal activities on hospital property
Insubordination
Breach of confidentiality
Abusive or threatening language
Sexual harassment
Unauthorized soliciting
Excessive tardiness
Carelessness (job performance)
Any violation of a clinical site's policies
Possession of firearms or other weapons
Falsifying patient documents/lab reports
Theft
Willful damage to hospital property
Intoxication at work
Jeopardizing patient care and welfare
Unprofessional behavior
Possession of intoxicating substances
Participating in helping another student cheat
Excessive absenteeism
Smoking in unauthorized places
Failure to comply with departmental dress code

Violation of these standards will result in disciplinary action at the discretion of the GVSU clinical coordinator and program director, which may include the following: a verbal warning, written warning, advising, suspension, or expulsion from the program depending upon the offense. A student's clinical site also has the right to terminate a student's experience based upon a student's behavior and/or actions. If a site refuses to continue clinical rotations for a student, GVSU's clinical coordinator will provide assistance in finding a new clinical site, but there is no guarantee for a new placement.

Dress Code Policy

Personal grooming, hygiene, and attire reflect the image of the laboratory. Student dress and appearance should be neat, clean, professional, and meet the requirements provided by university laboratory faculty, clinical instructors, and the manager or laboratory director at a

student's clinical site. Personal hygiene is an important component of professional dress and students should remain attentive to this aspect of their presentation as well.

Specific Requirements:

1. Students are required to follow the dress code of the clinical site.
2. Identification badge must be worn at all times.
3. Soft-soled, closed-toe, leather shoes must be worn in all analytical and patient care areas. Athletic shoes must be neat and clean and can be worn when in compliance with safety standards. Socks should be worn at all times. Sandals and open-toed shoes are prohibited.
4. Hair must be neat and clean. Long hair must be tied back. Beards, mustaches, and fingernails must be kept trimmed, neat and clean.
6. Clinical facilities have the right to require the removal of jewelry.

Health Compliance
All health compliance items are due on October 15, prior to the start of clinical rotations. Students must be considered fully compliant with the university health compliance requirements prior to the start of clinical rotations. Failure to meet all requirements may result in delaying the start of clinicals until a student reaches compliance.

Incidents and Reports
Any unusual incidents, accidents, or happenings must be reported appropriately according to a clinical site's policies and procedures. The GVSU clinical coordinator must also be notified, and a separate report form will be filed for GVSU.

If a student is made to feel uncomfortable or asked to do activities beyond their scope as a student while interning, they should report this to GVSU's clinical coordinator.

Health Insurance
Students are required to have their own health insurance coverage to be eligible to begin their internship. In the event of an incident requiring medical care at a clinical internship site, students are responsible for all related costs.

Clinical Experience Related Injury
In case of an injury to the student during clinical experience, the clinical site will provide adequate care; however, the student is responsible for any expenses incurred by the treatment of the injury.

Safety
Students are required to always follow the laboratory site safety policies. Safety rules are valuable only when they are followed. Your cooperation and compliance with all safety precautions is essential and will benefit all those with whom you come in contact. The following general safety rules should be followed:

1. Report or correct any unsafe conditions you observe. It is best to report in writing, your observation and action taken, if any.
2. Defective or broken equipment should be reported immediately to your laboratory instructor.
3. Report all injuries immediately to your supervisor and faculty.

Smoking
The clinical sites maintain a smoke free environment. No smoking is allowed on the property. Some sites also require nicotine testing of student interns prior to placement.

Working
Students are not expected to perform service work during their clinical rotation and are not required to perform unsupervised work in a department because of their participation in the GVSU MLS educational program. Employment for pay may be offered to students if there is a job available and the students meet all requirements for employment at the clinical site. This process is totally separate from the GVSU Medical Laboratory Science Program. Students apply for these hours through Human Resource and have separate time and attendance cards for work. Students may not be punched in as an employee at the same time as scheduled clinical experience hours.

Transportation
Students must have available independent transportation to clinical practicum since public transportation is not available at all clinical sites.

Student Exposure Policy
1. Students receive training on bloodborne pathogen (BBP) exposure at matriculation and annually.

2. Students are expected to be fully immunized for Hepatitis B and provide documentation of a Hepatitis B surface antibody titer showing immunity.
   a. If the student is a non-responder (negative titer following two complete vaccine series), they are required to follow up with their healthcare provider and sign an attestation acknowledging their risk.
   b. The program is notified if students have a non-responder status or a medical or religious exemption for Hepatitis B vaccines following a negative Hepatitis B surface antibody titer.

3. Students must follow Occupational Safety and Health Administration (OSHA) Guidelines for Standard Precautions in the classroom, laboratory, and clinical sites when the potential for exposure to hazardous materials or bodily fluids exists. This includes treating all blood and body fluids as infectious, hand hygiene, safe injection practices, safe sharps management and disposal, use of personal protective equipment, and environmental control measures.

4. The following actions are required following a puncture or contamination event that occurs during enrollment in the Grand Valley State University MLS program:

a. The student notifies the instructor/faculty and clinical preceptor (as applicable).
b. The student applies appropriate first aid measures (i.e., clean the wound with soap and water; flush mucous membranes with water/saline for 15 minutes).
c. The student reports the exposure to the GVSU Health Compliance Officer (healthcompliance@gvsu.edu).

5. The following actions are required following a puncture or contamination event that occurs during a clinical placement at an affiliated organization:

a. The student immediately reports the exposure to the clinical preceptor and appropriate department following the individual clinical site protocol.
b. The student confirms that the source patient will be tested.
c. The student accesses the site's emergency department (as applicable) for testing and treatment as soon as possible. If the student is at an ambulatory location, the student accesses the nearest urgent care.
d. The student notifies the instructor of record and the GVSU Health Compliance Office at healthcompliance@gvsu.edu following initial treatment and testing at the clinical site.

6. The following actions are required following a puncture or contamination event that occurs at GVSU:

a. The student immediately reports the exposure to the appropriate faculty member and/or Simulation Center staff.
b. The source patient/student is immediately sent to Corewell Health Occupational Health for testing.
c. Test results are communicated to the Health Compliance Officer. If needed, the exposed student is directed to the nearest Corewell Health Urgent Care for testing and counseling.

7. All fees and costs accrued as a result of source student testing for exposures that occur at GVSU are covered by the College of Health Professions. Follow-up testing/treatment can be done by the source student's healthcare provider and is the sole responsibility of the student and/or their health insurance.

8. All fees and costs accrued as a result of an accidental exposure are the responsibility of the exposed student and/or their health insurance. The student and/or their health insurance are billed, not workers' compensation or employee health. Follow-up testing/treatment can be done by the student's healthcare provider and is the sole responsibility of the student and/or their health insurance.

9. Upon program matriculation, students are required to sign a Health Insurance Acknowledgment Form indicating their financial responsibility for any student exposure

events.

MEDICAL LABORATORY SCIENCE SAFETY PROCEDURES AND PROTOCOLS

Read the following safety rules carefully. Notice that they do not include instructions for all possible situations which you may encounter. If you are not sure of how to deal with any material, procedure, or situation, ask your instructor for assistance. Additional resources can be found at www.gvsu.edu/labsafety.

1. Keep all personal items such as coats, notes, books, book bags, purses, etc. away from potentially contaminated laboratory areas. Items such as these must remain outside the laboratory or in designated areas (cubbies or lockers) within the laboratory.
2. Proper hand washing is a very important factor in arresting the transmission of infection and disease. Wash your hands at least:
   a. Upon entering the laboratory.
   b. Before and after performing any procedure involving use of gloves for patient and personal contact including venipuncture, finger puncture, urine collection, throat culture, etc. Remember that fresh gloves must be used for direct contact with each patient. **NOTE:** Do not ever use gloves with the microscope. Do not use contaminated gloves on "clean" objects such as phone, door knobs, etc.
   c. If your hands become contaminated with human blood or other human body fluids.
   d. Immediately prior to leaving the laboratory.

   Directions for proper hand washing are posted at each sink.

3. Keep fingernails clean and short.
4. Keep long hair tied back.
5. Notify your laboratory partner and/or the instructor if you feel ill, weak or faint, and report any injury to the instructor immediately.
6. DRESS FOR SAFETY
   a. Leather, close-toed shoes are required when working in the laboratory. Cloth shoes, sandals, or shoes that do not cover the entire foot are not permitted.
   b. Shorts and/or skirts that do not come below the knee are also not allowed when working in the lab. Loose fitting clothing, scarves, neckties, and jewelry may be hazardous and should not be worn in the laboratory.
   c. Students will be required to have a laboratory coat for use in the clinical laboratory. Coats are available at the GVSU Bookstore or local supplier, or may be provided by the MLS program. The lab coat must be worn **at all times** when the student is working in the lab and should be buttoned completely to assure maximum personal protection. **YOU WILL NOT BE ALLOWED TO PARTICIPATE IN LABORATORY EXERCISES WITHOUT A LABORATORY COAT**. Do not wear the coat outside of the laboratory.

7. Read the entire assigned laboratory exercise before beginning, and note any special precautions. If you are unsure how to safely perform any portion of the procedure, be certain to ask before proceeding.
8. Do not eat, drink, smoke or chew tobacco, apply cosmetics or contact lenses in the laboratory. Do not moisten labels with your tongue, chew pencils, or lick your fingers when turning pages.
9. Disinfect your work area with approved disinfecting agent at the beginning and end of each laboratory period
10. Make sure to clean up spills containing human blood or other potentially infectious materials immediately. First absorb as much of the spill as possible with paper towels, being sure to wear gloves and avoid touching any broken glass. Then wash the area with soap to remove protein residue. Finally, flood the spill area with 10% bleach or other approved disinfecting agent and allow to stand for 15 minutes. Completely wipe up and clean the area with absorbent paper towels. Dispose of the towels and all clean up materials in a biohazard bag.
11. Never pipette by mouth. Appropriate pipetting devices are available for each laboratory procedure.
12. Do not place dirty pipettes on the bench top. Do not leave pipettes sticking out of reagent bottles, flasks or test tubes. Place them in the appropriate disposal container as directed by your laboratory instructor.
13. Use **UNIVERSAL PRECAUTIONS** when dealing with human blood and human body fluids in the laboratory. This means that you must treat all samples and reagents containing human materials as potentially pathogenic and contaminated.
14. Personal Protective Equipment (PPE)
    a. Use the Biosafety cabinet (BSC) when directed.
    b. Wear protective gloves when performing procedures involving human blood or body fluids, including clean up. This includes use of all contaminated laboratory equipment, supplies, instruments, test tube racks, glassware, and etc.
    c. Proper PPE should be worn when working with infectious agents, including masks (and/or BSC) when dealing with organisms known to be airborne pathogens.
    d. Use Safety goggles or other appropriate face protection (or Flow Sciences splash shield) during any procedure likely to generate droplets containing blood, body fluid, or harmful chemicals.

       Examples include:
       - Opening specimen container
       - Uncapping any vacutainer type blood or urine collection tube
       - Processing specimens by centrifugation
       - Pouring specimens
       - Use of analyzers with tubing
       - Dilution, pouring, or use of disinfectants
       - Disposing of specimens

    e. Goggles and face shields should be disinfected prior to each laboratory session by wiping them with 70% isopropanol and allowing them to air dry; goggles must be worn when handling or transferring chemicals for clinical analyses or chemicals used in specimen

preparation for analysis.

15. Minimize the production of droplets and aerosols by:
    a. Covering all test tubes before centrifugation
    b. Operating the centrifuge with the cover closed at all times
    c. Leaving the centrifuge cover closed for 15 minutes after tube breakage during centrifugation to allow for settling of airborne material. Disinfect the centrifuge (see #10).
    d. Performing activities such as blending, sonicating and vigorous mixing in covered containers or in a class I or II biological safety cabinet.
    f. Removing the tops from blood tubes using laboratory tissue or wipes to cover the tube and stopper. Open the tube "away" from yourself or anyone else.
16. When handling chemical reagents, carefully read all labels. Consult Material Safety Data Sheets (MSDS) when appropriate. MSDS include:
    a. Identity of the material and manufacturer
    b. Hazardous ingredients/identity information
    c. Physical/chemical characteristics
    d. Fire and explosion hazard data
    e. Reactivity data
    f. Health hazard data
    g. Precautions for safe handling and use
    h. Control measures

    Note: All Safety Data Sheets can be found at www.gvsu.edu/sds.

17. Label preparation and information required
    Clearly label all sample **specimens** with the following:
    a. Patient name
    b. Birthdate
    c. Date of acquisition
    d. Time of draw
    e. Initials of person performing the blood draw

    Clearly label all **reagents** with the following:
    a. Contents/Reagent Name
    b. Concentration
    c. Date of preparation
    d. Storage requirements
    e. Expiration date
    f. Hazard information
    g. ID of individual who collected the specimen or prepared the specimen
18. If you must leave the laboratory for any reason, ask someone to assume responsibility for instruments and reagents actively in use. Do not leave an "active" area unattended.

19. Clean, disinfect, and organize your work area before leaving the laboratory. Be sure to dispose of all potentially harmful substances and apparatus properly.
    a. Dispose of all non-sharp items that are contaminated with human blood and/or other human body fluids in biohazard bag.
    b. "Sharps" including needles, lancets, capillary tubes, glass microscope slides, and other glass, etc. that is contaminated with biological material must be placed in rigid plastic safety containers. Place these items directly into the containers without breaking, cutting or bending them. Do **NOT** recap needles! Use the proper technique for detachment directly into the safety container. These containers are autoclaved and sent out for disposal.
    c. Broken glass that is not a potential biological hazard must be placed in the designated puncture resistant cardboard container or contaminated sharps containers depending on the size of the broken pieces.
    d. Human blood, blood products, excretions and secretions must be carefully poured into liquid impervious biohazard bags.
    e. Materials labeled infective will be autoclaved by the laboratory staff.
    f. Laboratory glassware that is not contaminated with biological material must be washed in the prep room dishwasher.
    g. Reusable plastic and glassware should be placed in the appropriate containers for autoclaving prior to washing.
20. Do not handle gas cylinders unless under direct supervision of the instructor. If improperly handled they can become missiles capable of penetrating walls.
21. Keep your hands dry and be sure your feet and body are away from any water when handling electrical equipment. Be aware of an electrical shock victim's potential to conduct current to a rescuer. Check to make sure that reagent containers (especially saline) do not leak and drip on electrical outlets or strips in the laboratory.
22. Be aware of the fire evacuation plan for the laboratory. Remember not to use the elevators during a fire. The stairways are designed to be used as inside fire escapes.
23. Know the location and use of the following items:
    a. Fire extinguisher
    b. Fire alarm
    c. First aid kit
    d. Eye wash station
    e. Shower
    f. Nearest phone
24. In the unlikely event of a laboratory disaster (severe fire, explosion, chemical spill, other):
    a. Help any injured party, removing them from the site if appropriate.
    b. Shut off all flames and source of gas
    c. Evacuate the laboratory, close the doors as you leave
    d. Summon help by telling the laboratory instructor or sounding the fire alarm, leave the area and go directly to a phone dial one of the emergency numbers.

25. Hostile Intruder/Shelter-in-Place (Adapt "Run, Hide, Fight"): "In the event of a 'shelter-in-place' situation, such as a hostile intruder or severe weather, your immediate action is to Run,

Hide, or Fight if necessary, but primarily to follow my verbal instructions to secure the classroom (lock doors, turn off lights, stay quiet) and await official GVSU alerts for next steps 25.

ON CAMPUS EMERGENCIES: Police/Fire/Medical	**Dial 9-911**
FOR ALL EMERGENCIES (OFF CAMPUS):	**Dial 911**
GVSU Pew Security (non-emergency)	1-6677
Grand Rapids Fire Dept. (non-emergency)	616-456-3900
Mattie Brechbiel (MLS Laboratory Coordinator)	616-331-3304 (W)
Lilianne Nelson (MLS Program Director)	616-331-8540 (W)

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Med Tech University, *Safety Practices*, 1999

Providence Hospital, Southfield, MI: *Department of Laboratories Barrier Precautions and Universal Blood and Body Fluid Precautions*, 1991.

Rose, Susan L., *Clinical Laboratory Safety*, J.B. Lippincott Co., Philadelphia, 1984.

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GVSU MEDICAL LABORATORY SCIENCE PROFESSIONAL COURSE DESCRIPTIONS

All course objectives will be distributed to students with individual course syllabi.

MLS 320 - General Laboratory Practice and Instrumentation Credits: 3

An introduction to laboratory sciences, including laboratory safety, instrumentation, quality control, specimen collection, and processing. An emphasis will be placed on urine analysis and the clinical application of urine examination. Offered winter semester. Prerequisite: Admission into the MLS program.

MLS 340 – Hematology I Credits: 2

An introduction to normal blood cell development, morphology, and function, and a wide variety of clinical hematology laboratory procedures with an emphasis on accurate performance and theoretical basis of tests. An overview of theory and practical application of hemostasis, as it relates to the medical laboratory. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 341.

MLS 341 – Hematology I Laboratory Credits: 1

An introduction to a wide variety of hematology and hemostasis clinical laboratory procedures with an emphasis on accurate performance, theoretical basis of tests, and correlation of test results to patients' health status. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 340.

MLS 333 – Transfusion Medicine I Credits: 3

In this course, students will study foundational principles and techniques required for compatibility testing and other important transfusion medicine practices. Blood component collection, processing, management and distribution will also be discussed. Offered spring/summer semester. Prerequisite: MLS 405

MLS 350 - Management for Laboratory Science Credits: 2

This course is designed to teach the principles of laboratory management. It will focus on underlying managerial concepts that will assist the learner in application of this information to real-life situations. Learning units will cover four areas of management: Basic Principles and Organizational Structure, Human Resources, Finance, and Operations. Offered winter semester.

MLS 374 – Clinical Microbiology I Credits: 3

A study of the structure, function and diagnostic characteristics of clinically significant parasites, fungi and select bacteria. A focus will be placed on workflow and the role microbiology plays in patient outcomes; including discussion of pathogenicity, transmission and control of microbes,

along with related host response. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 375.

MLS 375 – Clinical Microbiology I Laboratory Credits: 1

The laboratory will focus on the study of the structure, function and diagnostic characteristics of clinically significant parasites, fungi and select bacteria. Microscopic observation and diagnostic procedures for the identification of pathogenic microbes will be emphasized. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 374.

MLS 405 – Molecular Diagnostics and Immunology Credits: 4

This course is an overview of the principles, theory and laboratory techniques used in molecular diagnostics, immunology and virology. The course will cover the structure, function and diagnostic characteristics of clinically significant viruses and pathogens involved in immunologic diseases and the methodologies used in their detection. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program.

MLS 422 - Clinical Chemistry Credits: 4

Biochemical, physiological, and analytic aspects of organic and inorganic substances of clinical interest, including electrolytes, blood gases, proteins, enzymes, lipids, drugs, and hormones, are presented through lecture, demonstration, and practical experience. Offered fall semester. Prerequisites: MLS 320

MLS 423 - Clinical Chemistry Laboratory Credits: 2

Biochemical, physiological, and analytic aspects of organic and inorganic substances of clinical interest, including electrolytes, blood gases, proteins, enzymes, lipids, drugs, and hormones, are presented through demonstration, laboratory exercises, and practical experience. Offered fall semester. Prerequisite: MLS 320.

MLS 440 – Hematology II Credits: 2

A study of abnormal blood cell development, morphology, and function. Blood dyscrasias will be studied with emphasis on the biochemical and morphological changes involved in disease. In addition, hemostasis theory and practical application will be correlated to various disease states. Offered fall semester. Prerequisite: MLS 340 and MLS 341. Corequisite MLS 441.

MLS 441 – Hematology II Laboratory Credits: 1

A study and application of hematology and hemostasis clinical laboratory procedures and their use in diagnosis and treatment of various blood dyscrasias. This course will also introduce the study and interpretation of body fluids, including both normal and abnormal states. Offered fall semester. Prerequisites: MLS 340 and MLS 341. Corequisite: MLS 440.

MLS 444 –Transfusion Medicine II Credits: 2

This laboratory-based course will use hands-on experiences to reinforce basic transfusion medicine practices and techniques. It will also introduce alternative testing methods, advanced troubleshooting, and important test procedures and principles used and practiced in transfusion medicine. Offered fall semester. Prerequisite: MLS 333

MLS 474 – Clinical Microbiology II Credits: 3

An advanced bacteriology course covering clinically significant bacteria. A focus will be placed on infection site as a means of understanding the role the organism plays in disease development. Discussion of diagnostic characteristics, methods used for laboratory identification and antimicrobial susceptibility testing will also be emphasized. Offered fall semester. Prerequisite: MLS 374 and 375. Corequisite: MLS 475.

MLS 475 - Clinical Microbiology II Laboratory Credits: 1

This laboratory course focuses on diagnostic testing procedures used for the identification of clinically significant bacteria. It is designed to simulate the clinical laboratory setting and provide students with the hands-on experience and practice needed to build their skill and competency. Offered fall semester. Prerequisites: MLS 374 and MLS 375. Corequisite: MLS 474.

MLS 492 – Clinical Practicum Credits: 10

During this full-time clinical experience, practicing medical laboratory scientists will supervise and teach students in advanced laboratory procedures. All students will rotate through each laboratory department including hematology, hemostasis, urinalysis, clinical chemistry, microbiology, and transfusion services where they will be exposed to typical workloads in hospital settings. Offered winter semester. Prerequisite: Successful completion of previously required courses.

MLS 495 - Medical Laboratory Science Capstone Credits: 3

Exploration of issues that impact health care, particularly the laboratory professional. Includes in depth discussions of research literature and its relevance to medical laboratory science. Students will work individually and in groups to prepare a paper, presentation, and a poster. Offered fall and winter semester. Prerequisite: Senior standing in the Medical Laboratory Science Program. Corequisite: MLS 490.

MEDICAL LABORATORY SCIENCE STUDENT MANUAL
SIGNATURE PAGE

I have received a copy of the current Medical Laboratory Science Student Manual. It is my understanding that if I have any questions concerning material in this handbook, I may contact the Grand Valley State University Medical Laboratory Science program director and/or education clinical coordinator for further clarification. I have read, understand and will abide by all the MLS Program Policies as printed in the Student Manual. I know that I am responsible for all the information contained in this handbook as well as any subsequent additions, and that I will be expected to conform to its procedures during my enrollment in the program, including all clinical education.

_____
Printed name

_____ _____
Date Student signature

I hereby give permission to the GVSU MLS Program Director and/or Clinical Coordinator to receive my score from any credentialing examination (NCA, ASCP, etc.)

_____ _____
Date Student signature

I hereby grant permission to the Grand Valley State University Medical Laboratory Science Program to use my image, likeness, and/or voice in any photograph and/or video to be used in any publication, advertising, training, and/or related endeavors, without further consideration. I understand that my name may be used in a caption or credits in relation to any photograph or video as described above.

_____ _____
Date Student signature

I hereby give permission to the MLS Program Director, Clinical Coordinator, or instructor of my choice (either university or clinical) to submit requested references to possible employers about my MLS academic and/or clinical experience.

_____ _____
Date Student signature

I agree to have a criminal background check and drug screen. I will self-disclose any criminal charge or plea of no contest that occurs while in the MLS program, within 2 weeks, to the MLS program director.

_____ _____

Date Student signature

I have read and understand the Medical Laboratory Science Program Safety Procedures and Protocols and agree to follow them.

_____ _____

Date Student signature

I realize that a high level of integrity and moral and ethical behavior are expected of me in all personal academic work and eventually my professional work. I agree that I will demonstrate ethical behavior and honesty in all class work, and laboratory and clinical assignments. I also agree to exhibit honesty and respect in all interaction with my classmates and faculty (university and clinical).

_____ _____

Date Student signature