



*Montana Medical
Laboratory Science
Professional Program*

STUDENT HANDBOOK

Accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS)
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The Montana Medical Laboratory Science (MMLS) professional program is a program to train Medical Laboratory Scientists (MLS). The program is directed by Montana State University (MSU), which is a member of the Montana University System (MUS). Through affiliations with the University of Montana (UM) and Montana State University-Billings (MSU-B), students from all three universities can complete their baccalaureate degrees through the MMLS program.

The three Montana universities' undergraduate curriculums have two options for MLS students, either a 3 + 1 option in which the MMLS program is the fourth year or a 4 + 1 program for students who have completed a bachelor's degree. The curriculum is designed to prepare students to enter an MLS training program, and each of the Montana universities has similar course offerings and minimum requirements for graduation. In August of 2007, MSU obtained a Montana workforce development grant to develop an MLS training program.

In this program, senior students or post-baccalaureate students apply to the program and, if accepted, participate in the yearlong MMLS program. Students continue to register and pay tuition to their home university. The MMLS program starts with a summer session, which consists of student laboratories and lectures at MSU. After the thirteen-week summer session, the students move to an affiliated hospital in the larger Montana communities. The students rotate in all clinical laboratory sections at the hospital and complete course work over an additional thirty-three weeks in the fall and spring semesters. After the spring semester, students are awarded a certificate of completion of the program. The 3+ 1 students obtain a Bachelor of Science degree in microbiology (MSU), biology (MSU-B), or medical technology (UM).

The MMLS professional program is affiliated with hospitals in the largest Montana communities, with each hospital training one to three students. These hospitals were chosen based on their volume and diversity of testing to provide the best educational opportunity for the student. Each hospital has an appointed education coordinator to schedule rotations, distribute educational material, and oversee student training.

During the last month of the year-long program, students will complete a rural rotation. This rotation has been designed to place the students in small hospitals throughout Montana.

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MISSION STATEMENT

The Montana Medical Laboratory Science Professional Program is dedicated to training Montana students to have the skills, knowledge, and attitudes that will make them competent and compassionate medical laboratory professionals and provide Montana hospitals with a future workforce capable and ready to become clinical laboratory leaders.

PHILOSOPHY

The Montana Medical Laboratory Science Professional Program adheres to the philosophies of the Montana University System:

The Montana University System serves students through the delivery of high quality, accessible post-secondary educational opportunities while actively participating in the preservation and advancement of Montana's economy and society.

We prepare students for success by creating an environment of ideas and excellence that nurtures intellectual, social, economic, and cultural development.

We hold academic quality to be the prime attribute of our institutions, allocating human, physical, and financial resources appropriate to our educational mission.

We encourage scientific development and technology transfer, interactive information systems, economic development, and lifelong learning.

We protect academic freedom, practice collegiality, encourage diversity, foster economic prosperity, and are accountable, responsive, and accessible to the people of Montana.

GOALS

To provide students with a foundation of knowledge and experience that will enable them to become successful Medical Laboratory Scientists possessing the entry-level competencies necessary to enter the workforce.

To instill, in students, the desire and integrity to accurately and efficiently perform laboratory testing with the dual purpose of patient care and confidentiality.

To foster the investigative skills necessary to pursue and solve problems in a laboratory setting.

To encourage students to develop interaction and communication skills with patients, co-workers, and other medical professionals.

To inspire students to have pride in work and satisfaction in playing an essential role in healthcare.

To expose students to various laboratory settings, including large healthcare systems and smaller rural hospitals.

To create a framework that will promote the development of future leaders in the laboratory profession.

To increase the potential Medical Laboratory Science workforce available to Montana communities.

To provide experiences that will encourage students to form a network of colleagues and promote dedication to the profession through continued participation in professional organizations.

CAREER ENTRY COMPETENCIES

After completion of the MMLS Professional Program, students will be able to:

1. Appropriately collect and process patient samples for laboratory analysis following established protocols.
2. Accurately perform routine testing and maintain a timely workflow in all clinical laboratory areas following established protocols.
3. Explain the principles, methods, and clinical significance of major laboratory tests in all areas of the clinical laboratory.
4. Explain the clinical significance of laboratory test results in diagnosing and treating disease and maintaining health.
5. Operate, calibrate, and perform routine maintenance of instrumentation using appropriate materials and following established protocols.
6. Utilize quality assurance concepts to assure testing accuracy and reliability.
7. Evaluate the validity of a patient's test results with respect to reference intervals, quality control parameters, correlation with other test results, and their history.
8. Utilize the laboratory information system to report laboratory results according to established protocols.
9. Assist in problem-solving preanalytical, analytical, and post-analytical elements of the clinical laboratory.
10. Collaborate with other healthcare professionals to diagnose and treat patients by suggesting or selecting appropriate additional testing.
11. Evaluate, select, and establish new methods, techniques, or instrumentation in all laboratory areas.
12. Use educational methods to present information to healthcare professionals and the public.
13. Demonstrate requisite knowledge of management principles.
14. Maintain professional standards such as integrity, cooperation, mutual respect, and empathy in all interactions with co-workers, other healthcare professionals, patients, and the public.
15. Respect the confidentiality of patient information at all times.
16. Respect and follow appropriate safety procedures at all times.

FACULTY



MMLS Program Director, Microbiology Instructor & Hematology Instructor

Kay Rasmussen, EdD, MS, MLS (ASCP)^{CM}

Kay grew up on a farm near Burbank, South Dakota, which is in the southeastern part of South Dakota. Kay earned her bachelor's degree in Medical Technology from the University of South Dakota, Vermillion, South Dakota. Upon graduation, Kay worked in a medical microbiology research lab at Creighton University located in Omaha, Nebraska. After two years, Kay and her husband, Ric, returned to Vermillion to be closer to family. Kay began working as a medical laboratory scientist at the Vermillion Hospital. She started as a generalist and worked her way up to the lab manager. In 2004, Kay was offered and accepted a part-time MLS Program Director position at the University of South Dakota. In January 2005, Kay began her MLS Master's Degree work through the University of North Dakota. She completed that degree in May 2009. In 2009, she became full time at USD. In 2012, she began work on an Educational Doctorate at USD. The degree was completed in May 2016. Kay started her position at MSU in June of 2016. Kay's clinical interests are in the areas of hematology, blood banking, and interprofessional education/collaboration. She has been a member of both ASCLS and ASCP since 1984. Outside of the academic arena, she enjoys baking, all types of sports, and just enjoying nature. Kay and Ric have three grown children and two grandchildren.



Associate Program Director & Chemistry Instructor

Alison Mizner, MT(ASCP)

Alison is a Montana native, having grown up in Absarokee, MT. She is a Montana State University alumna, having graduated from MSU with a bachelor's degree in Microbiology/ Medical Technology. She then completed a clinical internship at Columbus Hospital School of Medical Technology in Great Falls. She continued to work for Columbus Hospital and Benefis after her training.

Alison moved back to Bozeman in 2016 after having worked at Kalispell Regional Healthcare for 15 years. Alison has served as chairperson for the Montana State Board of Clinical Laboratory Scientists and finished her second term with the board in 2018. She is currently working on her Master's of Science degree in Medical Laboratory Science through the University of North Dakota.

Alison and her husband, Scott, have two sons. They enjoy skiing together as a family and are always busy with their boys' activities.

Immunohematology Instructor

Sadie Arnold MLS(ASCP)^{CM}SBB^{CM}



Sadie is currently the Lead Blood Bank Medical Technologist and Stem Cell Processing Technologist at Billings Clinic. She has a B.S. in Microbiology from Montana State University-Bozeman and is a graduate of the 2009-2010 Montana Medical Laboratory Science Program. In May 2018, she enrolled in the Specialist in Blood Banking (SBB) Program through Lifeshare Blood Center and the University of Texas Medical Branch. She graduated from the program in May 2019 and is a Certified Specialist in Blood Bank (SBB). Sadie has always had a strong interest in Laboratory Medicine, Immunohematology, and sharing her knowledge with others. Through the SBB Program, she has expanded her knowledge and experienced firsthand advanced Transfusion Service principles, Immunohematology Reference and HLA Laboratory testing, Intraoperative Blood Salvage in Cardiovascular Surgery, the complexities of Blood Donor Services, and Molecular Genotyping for blood group antigens.

Microbiology Instructor & Laboratory Management Instructor

Susanne (Susie) Norris Zanto, MPH, MLS(ASCP)^{CM}, SM(NRCM)

A born and bred Montanan from Fairfield, Susie graduated from Montana State University with a degree in Microbiology (Med Tech Option) followed by a 12-month hospital-based clinical internship at what is now Benefis in Great Falls. Her first MLS job was at the Veteran's Administration Medical Center Laboratory in Fort Harrison, Montana, followed by a 30-year career at the Montana Public Health Laboratory. Later in her career, Susie went back to school online and received her Master in Public Health degree from the University of Montana in 2010. After retirement, Susie began her own consulting business, LaboratorySolutionZ, and is excited to be an instructor in the MMLS program. Susie has published and presented numerous posters and educational sessions at state, regional, and national meetings, primarily infectious disease, quality improvement, and laboratory management.



Susie continues to be active in her professional societies. She is a Past President of the American Society for Clinical Laboratory Science (ASCLS), a past Councilor of Division Y, Public Health, for the American Society for Microbiology (ASM), past Chair of the Association of Public Health Laboratories (APHL) STD Subcommittee. She is a graduate of the APHL Emerging Leaders Program. Susie's professional experiences give her many opportunities for professional and personal growth. Over the years, she has gathered an extensive network of professional colleagues to call for help and advice.

Susie is supported in her activities by her husband, Jack, has two grown children, two darling granddaughters, and three fun-loving grandsons. She likes to walk for exercise, enjoys most sports (as a spectator) and enjoys going on "adventures" with Jack.

Hemostasis Instructor /Phlebotomy Instructor

Katie Visser



Kati J. Visser pursued her undergraduate degree in Microbiology at Montana State University and is an alumna of the Montana Medical Laboratory Science Program. She worked in a large hospital system in Oregon, working her way up into management positions. During that time, she also pursued her Masters of Science degree in Medical Laboratory Science through the University of North Dakota, Grand Forks, with a concentration in molecular, chemistry, bacteriology, and education. Deciding they had had enough of Oregon, Kati and her family returned to their roots in Montana after accepting the clinical laboratory manager position at MSU's University Health Partners. After working in the clinical laboratory, she had the opportunity to develop a molecular toxicology laboratory in the private sector and transitioned into that position. She is currently working at the Livingston Healthcare laboratory. She loves to learn and grow in her skills as a laboratorian and in the theory of MLS. She currently teaches hemostasis and phlebotomy in the MMLS program.

She and her husband, Justin, have been married for 23 years and have a daughter, Autumn, a Junior in high school. They enjoy spending time together as a family and with extended family. Kati is an avid runner, and she and Justin love spending the summer and autumn seasons hiking and trail-running. Recently, she has found a new hobby: peloton-app biking!

SUMMER SEMESTER PROGRAM

COURSE DESCRIPTIONS Summer Semester

CLINICAL HEMATOLOGY AND BODY FLUIDS I **BIOH 464 - 2 credits**

This course is a condensed review of hematology, emphasizing normal blood cell identification, and routine laboratory procedures. The class will begin with a review of hematopoiesis. The focus then shifts to a description of the more common laboratory tests, both manual and automated, performed in the hematology area. Normal cells, reference ranges, quality assurance, and quality control are emphasized. In addition, the pathophysiology of hematologic disorders and the laboratory tests used for diagnosis and treatment will be covered. The final two days of the class will discuss concepts relating to the clinical significance of body fluids and the identification of normal and abnormal cells in those fluids.

Students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives outlined in the course syllabus after the course. Students will also demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL MICROBIOLOGY I **BIOH 466 - 3 credits**

This course is a highly condensed diagnostic microbiology course. The course will focus on medical microbiology with emphasis on clinical testing procedures. Specimens from patients will be provided for observation and identification of commensal and pathogenic organisms. The course will also include the diagnosis of potential pathogens from numerous body sites and parasitology, mycology, and virology testing. The format will consist of both lecture and laboratory instruction. It is designed to prepare a student to enter a clinical laboratory with some knowledge of the diagnosis of pathogenic organisms before learning and working in a professional clinical microbiology laboratory. Students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus at the completion of the course. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL CHEMISTRY I **BIOH 467- 3 credits**

This course will focus on the body's major organ systems and important metabolites measured in the clinical chemistry laboratory. The student will discuss the metabolic and physiologic processes of the body, in both health and disease. There is an emphasis on the analytic techniques, methods, and laboratory tests used to assess these processes.

Students will have the opportunity to work with the chemistry analyzer at the MSU Student Health Service, running quality control and patient specimens. Students will be introduced to point-of-care testing, instrument maintenance procedures, and troubleshooting. Students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus at the completion of the course. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL IMMUNOHEMATOLOGY I**BIOH 468 - 3 credits**

This course is a concentrated course emphasizing basic theory and routine techniques in blood banking. The course consists of lectures, discussion, learning activities, and laboratory instruction. Topics included are ABO/Rh and other red cell blood group systems, antibody screening and identification, pre and post-natal testing, transfusion therapy and reactions, donor collection, and component preparation. The laboratory portion will correlate with the lectures and discussions, including an introduction to and experience with numerous techniques used in today's immunohematology laboratories. Labs include instruction in clinical methodologies and semi-automated instrumentation, quality control, and case analysis. This course is designed to prepare the student to enter a clinical laboratory Blood Bank to understand the scope of immunohematology and the necessary knowledge and experience needed to perform routine testing and interpretation. It will also provide a basis for continued study of more complex situations addressed in Immunohematology II and III. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

ESSENTIALS OF CLINICAL LAB PRACTICES**BIOH 469- 1 credit**

This course is taught in several 1 to 4 day sections. It will provide information in areas of the laboratory that are not as subject and course intensive. Many of the topics are components of the fall and spring rotations and will be further investigated by students at their clinical sites. Topics covered include lectures on professionalism, education, research, laboratory safety, molecular diagnostics, and laboratory management. In addition, lectures and laboratory practice in phlebotomy, basic hemostasis, and urinalysis will be conducted. The hemostasis portion will be an overview of normal hemostasis, covering vessel function, platelet function, coagulation, regulation of coagulation, and fibrinolysis. Common tests of hemostasis and instrumentation will be introduced and causes of thrombosis, anticoagulant therapy, and the more common bleeding disorders, as time allows. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus

GENERAL INFORMATION Summer Semester

Tuition: All students in the MMLS program must be registered at one of the three affiliated Montana universities (MSU, UM, and MSU-Billings). Tuition and fees are specific for each university and are published in each university catalog. Students pay tuition, a lab fee, and any additional fees to the university they are registered.

Class Registration: Courses for each semester are specifically for the MMLS professional program and can only be enrolled in the course with your university MMLS advisor's aid.

- **MSU-Billings students:** Students will register with your advisor's aid for a 12 credit summer course, a 13 credit fall course, and a 12 credit spring course.
- **UM students:** Register with your advisor's aid for a 12 credit summer course, 13 credit fall course, and a 12 credit spring course.
- **MSU students:** Registered by the program director for each of the clinical courses each semester as they are restricted entry courses

Withdrawal and refund: Students who withdraw from the MMLS program are subject to tuition and fee refund and withdrawal set forth by their home university. These policies are stated in each university's catalog and website.

Transcripts: Accepted students must submit updated transcripts listing courses completed between acceptance into the program and the beginning of the summer semester to the program director or associate director within the first week of summer classes. Failing a prerequisite course is grounds for dismissal from the program. Realizing that it may be challenging to get an official transcript immediately, a web or printed copy of your grades will suffice.

Textbooks and Notes: The MSU Bookstore will have books from the required booklist available for purchase. Texts listed on the booklist will be used for the entire year. We also suggest bringing books and notes from past related classes for further reference (i.e., Biochemistry, Hematology, Anatomy, Statistics, etc.).

Dress Code: A casual yet professional appearance is required of students. Body piercings are not allowed for the summer semester program or clinical rotations.

For safety reasons:

- open-toed shoes are not permitted during laboratory sessions
- shorts and short skirts are not allowed during laboratory sessions
- lab coats must be worn for laboratory sessions
- lab coats must be kept in the laboratory

Identification card: Students may want to obtain a "Cat Card." It acts as an on-campus pre-paid charge account for easier access to university resources and recreation. **The Cat Card is not required unless you are living on campus.** A fee of \$15 applies.

www.montana.edu/catcard/students.html#get

Housing: Housing for the summer session is the responsibility of the student. If you would like on-campus housing, please see the MSU residence life website:

https://www.montana.edu/reslife/summer_housing.html

Parking: Students must register any motor vehicle and obtain a parking permit to park on the MSU campus. Parking includes all University controlled streets and lots. There is **NO** free parking on the Bozeman campus. Parking permits may be purchased at the Visitor Information Booth located at 7th and Grant Street.

- **"Streamline"** is a local bus system free for everyone and has many stops in the Bozeman area and MSU, including daily Belgrade and Livingston routes. See their website www.streamlinebus.com for current schedules and routes.

University Services:

- **Recreation and Fitness center** access can be obtained by paying a monthly membership fee (for non-MSU Bozeman students). For more information, see their website: www.montana.edu/getfit
- **Library:** For non-MSU Bozeman students, a library borrower pass can be obtained by providing photo identification and proof of Montana residence. This pass is necessary if you intend to check materials out from the library.

ACADEMIC POLICIES Summer Semester

Class Schedule: Class will begin each day at 8:30 AM and be dismissed at 5:00 PM or at the instructor's discretion. Students will be informed of class time scheduled outside of this basic schedule.

- Class attendance will be incorporated into a student's grade by the class instructors.

Tardiness:

Students are expected to report to class on time. Consistent tardiness will be reflected in the student's overall grade. Time missed for tardiness will be made up at the discretion of the instructor. If chronic lateness persists, the following actions will be taken:

- **Step 1.** The instructor will issue a verbal reprimand.
- **Step 2.** If tardiness continues, a written reprimand from the instructor and the MMLS program director will be given to the student and documented in the student's file.
- **Step 3.** If tardiness continues after these two steps, disciplinary action from the MMLS program will occur.

Absences:

- **Pre-excused:** Students are allowed two days of excused absences during the summer semester. These are for pre-planned events, such as reunions and weddings. Please give as much notice as possible for absences and fill out the enclosed "Excused Absence" form (Appendix II). It is the student's responsibility to remind the instructors of upcoming absences.
- **Unexcused:** Students are responsible for notifying instructors in case of an emergency or illness that will prevent class participation.

- **In all cases of missed class time:**
 - It will be the student's responsibility to obtain notes and information about the missed course work. The instructor, at their discretion, will help you with this. It must be noted that the days are busy, and class preparation is very intense for the instructor and teaching assistant. Therefore, do not assume we can stop what we are doing to help you with missed information.
 - Not all assignments can be made up. In most cases, laboratory sessions, practical exams, projects, and activities cannot be made-up. Everything comes at such a fast pace that make-up activities are virtually impossible to do.

Progression/Grading for Summer Semester program: The grades for each course will be based on daily assignments, labs, tests, practical exams, and projects.

- **Academic achievement:** Students must achieve a passing grade **as specified in each course syllabus.**
 - A failed course will be repeated the following year, resulting in delayed graduation for 3+1 students. **Placement in the course the next year is not guaranteed.**
 - Consistent failure to achieve the required grades may result in termination from the program and ineligibility to sit for the national certifying exam.
 - Students are responsible for seeking assistance from the instructor when additional help is needed.
- **Late assignments:** Assignments for each course should be completed by the end of that course. Late assignments will be accepted at the discretion of the course instructor.

Academic Misconduct: The MMLS Professional Program adheres to the Montana State University Academic Misconduct Policy and Procedures.

- The university misconduct policy can be read in its entirety at:
http://www.montana.edu/policy/student_conduct/#academicmisconduct

Causes for dismissal from the MMLS program:

- Cheating
- Plagiarism
- Endangerment of self or others
- Violation of patient confidentiality
- Violation of the Health Insurance Portability and Accountability Act of 1996.
 - a. Disregard of the patient's right to confidentiality and privacy
 - b. Accessing patient/healthcare information not needed to complete laboratory duties
- Poor attendance
- Failure to pass a prerequisite course
- Failure to meet academic or performance standards as stated in each course syllabus
- Non-disclosure or the inability to perform the essential functions
- Non-disclosure of pertinent information in the health history relevant to the safety of yourself or others
- Failure to comply with any institutional (University or clinical affiliate), department, program, or course policies/standards.

Students dismissed from the MMLS program may not meet the degree requirements to earn a bachelor's degree or a certificate of completion and will not be eligible to take the certification exam board.

Student Complaint, Grievance, and Appeal Procedure: Students retain the right to file a complaint or grievance in cases where they feel that they have been wronged academically or non-academically. The non-academic types of grievances include matters such as discrimination, general student conduct, or sexual harassment. Students should proceed as follows.

For complaints or grievances during the summer semester program:

- **Step1.** The student should first attempt to resolve the dispute or problem directly with the instructor of the course.
- **Step2.** If the grievance is not resolved, it should be submitted in writing to the program director or associate director. Subsequently, a meeting will take place to discuss the grievance.
- **Step3.** Suppose the grievance is still not resolved or the student is uncomfortable speaking to the program director or associate director. In that case, the student should contact their home university advisor or, if from MSU, the Head of the Department of Microbiology and Immunology. In this situation, an impartial advisory committee will act on the grievance.
- **Step of last resort:** If the student has a grievance that cannot be resolved through the above processes, the student will be advised to appeal through their university grievance process. Specific policies and procedures are found at the following web site:
http://www.montana.edu/policy/student_conduct/#academicgrievances

STUDENT HEALTH AND SAFETY POLICIES Summer Semester

Physical: Students must provide a health history and have a routine physical before the program's beginning.

- This information is kept confidential and will only be reviewed by the program director and associate director. It is maintained as part of the student file.
- Only information relevant to students' safety or others' safety will be shared with the summer instructors and teaching assistants.

Vaccinations:

All Montana universities have rules governing mandatory immunizations. You will need to submit proof of these immunizations before starting the program.

- **Hepatitis B Vaccination:** In addition to the mandatory immunizations required for all university students, each student will be required to have hepatitis B immunization and/or submit proof of immunity to the hepatitis B virus.
- Once a student has completed the Hepatitis B vaccination series, a titer demonstrating proof of immunity must also be submitted.
- **Varicella:** Proof of vaccination or medical documentation of having had chickenpox. A titer demonstrating proof of immunity is also acceptable.
- **Measles Mumps Rubella (MMR):** Proof of appropriate vaccination against MMR.

- **Tetanus, Diphtheria, Acellular Pertussis (Tdap):** Documentation of Tdap from any time, and a Td booster within the past 10 years or a Tdap vaccination administered within the last 10 years.

Tuberculosis Testing:

The 2-step tuberculin skin test by PPD (Mantoux) is required for all students. This test is **only valid for one year;** therefore, we advise students to have it performed at the MSU student health service (SHS) during the summer program. **All students have access to the SHS during the summer program.** Directions for testing will be given on the first day of class.

Health Insurance:

Students **must have** health insurance for the summer semester and fall and spring semester clinical rotations.

- Students are responsible for having a health insurance policy throughout the Professional Year. MMLS program officials will complete verification of this policy.
- Students are responsible for payment of health-related bills that occur, including needle sticks or bloodborne/airborne pathogen exposure.

Routine and Emergency Health Care: During the summer program, all students have access to primary medical care at the MSU Student Health Service. Reciprocity has been guaranteed to the University of Montana and MSU - Billings students.

- **Emergency/After Hours Care:** Students can receive emergency care at Bozeman Deaconess Hospital and after-hour care at a local urgent care facility.

Liability Insurance: Montana State University provides liability insurance for students attending hospital rotations in the MMLS professional program.

Color Blindness: You will be tested for color blindness. The testing is to make you aware of possible problems associated with color distinction. It does not make you ineligible for the program.

Essential Functions: A list of essential functions is included in the student application packet and was signed by you as part of your application. They are non-academic requirements of the MMLS professional program that students must demonstrate to successfully participate in the program and eventually seek employment in Medical Laboratory Science. The form is included in this student handbook as well.

If it is discovered that a student has signed the form but is incapable of fulfilling the essential functions, they will be advised of dismissal from the program.

Background Check Issues:

Background checks are monitored by the Director and the Associate Director of the MMLS program via the third-party vendor for compliance tracking.

- Students are also required to report infractions of the law that occur after the initial background check to the Program Director.
 - Failure to do so will result in removal from the program.
- Serious infractions appearing on the background reports will require the student to submit a letter explaining the offense, as well as supporting documents.
- The Program Director, Associate Director, and appropriate university personnel will evaluate the background check issue. The Program Director will communicate the decision to the student.
- Clinical affiliates may refuse to accept any student for clinical experiences who has a criminal record, regardless of whether or not the MMLS Program allows the student to continue. The MMLS Program makes no guarantees that a student with a criminal record can be placed in a clinical internship.
- If the MMLS Program becomes aware that a student who has been accepted into the MMLS Program and has begun classes has a criminal history that the student did not disclose, the student will be immediately dismissed from the MMLS Program.

Drug Testing Policy:

The MMLS Program clinical affiliates require students to undergo testing before beginning their clinical program and when indicated during the clinical year. The purpose of this policy is to help ensure a safe environment during clinical training. The results are reported to the MMLS Associate Director. A positive drug test may preclude the student from participating in the clinical program and internship and may result in dismissal from the MMLS Program. Students are responsible for the cost of the drug screen(s).

In the event of a positive drug screen, the following procedure is necessary:

- The student will be asked to complete a repeat drug screen immediately, participate forthrightly in an interview with program officials, and submit a written petition with documentation that describes the circumstances related to the positive drug screen.
 - If the interview and documentation establish lawful use of a controlled substance, the student will be permitted to continue in the MMLS program.
- If the interview and documentation establish the unlawful use of a controlled substance, the information will be reviewed by the program and university officials. After the review, the program director will issue a letter indicating the student's dismissal or continuance with the MMLS program.
- Failure to submit a written petition or participate forthrightly in an interview will result in dismissal from the program. Submission of a petition and participating in the interview(s) does not guarantee a student will be permitted to continue with the MMLS program.
- Each incident will be appropriately investigated, and the decision of the MMLS program is final.

Program/ Career Guidance: The MMLS faculty is available to assist students with the program policies and practices and advise students on professional and career opportunities. When it comes to guidance, students will:

- Be treated impartially and without discrimination.
- Have their counseling kept confidential.
- Have a record of a student's advising and counseling kept in their file. Access to this file is restricted to the student, director, and associate director of the program
- Be given information on employment opportunities in clinical laboratories throughout Montana and the nation. The student will also be provided with information on MLS opportunities when they obtain sufficient experience as a practicing professional.

Personal or Financial Guidance: The MMLS faculty do not provide guidance for personal or financial problems that may interfere with progress in the program. The student will be referred to alternative options available through the university in which they are enrolled. These services are typically found at the Counseling & Psychological Services in the Student Health Service, Dean of Student Affairs, Veterans Affairs (if applicable), Business Office, and Office of Financial Aid.

Student Records: The Family Education Rights and Privacy Act (FERPA) guarantees students access to their educational records. The program maintains student information explicitly submitted for the program.

- Current and former students have the right to inspect and review educational records maintained by the program.
- FERPA prohibits any person connected with the institution from improperly disclosing student information. Complete information about FERPA can be located at the MSU web site: http://www.montana.edu/policy/family_ed_privacy_act/
- The Associate Director of the program maintains all records of students in the MMLS professional program.

Confidentiality: All faculty and staff participating in the MMLS program will document their confidentiality of student information by signing the confidentiality agreement prepared by the Office of Legal Counsel: <http://www.montana.edu/legalcounsel/forms/confidentiality.html>

Biohazard and Bloodborne Pathogen Exposure Plan: Instructors will outline laboratory safety practices at the beginning of the summer semester. In addition, each instructor begins their course with specific instructions on handling blood and pathogens.

- The Biohazard and Bloodborne Pathogen Exposure Plan can be found in Appendix I.

FALL AND SPRING CLINICAL ROTATION

Clinical Affiliate Sites:

- Benefis Healthcare - Great Falls
- Billings Clinic- Billings
- Bozeman Health- Bozeman
- Cabinet Peaks Medical Center- Libby
- Community Medical Center- Missoula
- Kalispell Regional Medical Center, Kalispell
- North Valley Hospital- Whitefish
- St. James Healthcare, Butte
- St. Patrick Hospital- Missoula
- St. Peter's Hospital- Helena
- St. Vincent Healthcare- Billings
- VA Montana Healthcare System- Helena
- Central Montana Medical Center – Lewistown
- Great Falls Clinic- Great Falls
- Livingston HealthCare – Livingston
- Marcus Daly Memorial Hospital – Hamilton

COURSE DESCRIPTIONS Fall Semester

LAB PRACTICE II

BIOH 473 - 1 credit

This course will provide the student with the essential skills for performing phlebotomy, laboratory specimen collection, handling and preparing samples for laboratory analysis, and interpersonal communication skills. Students will become competent in performing routine phlebotomy procedures. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL HEMATOLOGY II

BIOH 474 - 2 credits

This course for students in a clinical laboratory hospital has two points of focus. First, students learn to process all specimens received in the hematology department correctly. This includes preanalytical steps (e.g., verifying correct patient identification and orders and assessing the quality of specimens received), analytical steps, using both automated and manual procedures, and post-analytical steps (evaluating, interpreting, and correctly reporting the results). The second area of focus is a more detailed study of white blood cells and the disorders of those cells. After reviewing hematopoiesis and studying normal hematology in pediatric and geriatric patients, disorders of the WBCs, both non-malignant and neoplastic, will follow. Cancers involving red blood cells, platelets, and mesothelial cells are also included. Students will be assessed through quizzes. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus.

CLINICAL HEMOSTASIS**BIOH 475 - 1 credit**

This course will review the previously presented material and emphasize the assessment of hemostasis results and controls using automated procedures. Daily and periodic maintenance and quality control of a coagulation analyzer will be performed. The student will have the opportunity to run and assess the validity of patient samples and results. Students will assess, interpret, and correlate data related to normal, abnormal hemostasis, and anticoagulant therapy. This will be completed through bench testing, learning activities, and case studies. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL MICROBIOLOGY II**BIOH 476 - 3 credits**

Students will obtain practical bench experience in the various areas in the clinical microbiology laboratory in this course. The student will practice the identification of organisms from patient specimens in a clinical hospital laboratory setting. Qualified professionals will supervise the processing of samples and reporting of results. In addition, automated and semi-automated procedures for identification and susceptibility testing will be practiced. Students will also review diagnostic testing for all clinically significant organisms while obtaining practical experience and identify unusual or nonculturable pathogens through worksheets containing relevant questions. They will be assessed through quizzes for the course. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus.

CLINICAL CHEMISTRY AND URINALYSIS II**BIOH 477 - 3 credits**

During the first hospital rotation for clinical chemistry, the student will practice manual and automated procedures for determining clinical analytes in blood and urine. Emphasis is placed on the operation of instrumentation to accurately and precisely generate results for routine chemistry analytes. Students will relate the clinical significance of laboratory results in the maintenance of health and the diagnosis and treatment of disease. Students will competently perform routine urine testing, including the microscopic examination of urine sediment. They will be assessed through quizzes and an instrument competency checklist. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus.

CLINICAL IMMUNOHEMATOLOGY II**BIOH 478 - 3 credits**

This course will build on the skills and knowledge learned over the summer in Immunohematology I and apply it in the clinical setting. The course will emphasize the maintenance of blood product inventory, routine maintenance procedures, and patient testing in the blood bank. The student will have the opportunity to test and interpret results with proper follow-up and choice of blood and blood components. Students will correlate immunohematology theory with testing, transfusion practices, and patient care. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus.

CLINICAL IMMUNOLOGY/SEROLOGY**BIOH 479 - 1 credit**

This course includes the theory and application of basic immunology and immunologic testing methods. The cells, proteins, and chemicals involved in the immune system and immune disorders such as hypersensitivity, autoimmunity, immunodeficiency, and protein abnormalities are addressed. The assessment, interpretation, and clinical significance of laboratory data and the correlation to states of health and disease will be emphasized. They will be assessed through quizzes for the course. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive objectives outlined in the course syllabus.

COURSE DESCRIPTIONS Spring Semester**LAB PRACTICE III****BIOH 482 - 2 credits**

This course will introduce students to working in a rural hospital laboratory where a small number of technologists perform all laboratory duties. This course will be completed near the end of the spring semester of the one-year training program. The rural rotation will allow the student to practice skills and experience a different work environment. Students will understand the role of a Medical Laboratory Scientist (MLS) in a local healthcare community servicing a small demographic population. Communication skills with patients and all healthcare providers will be stressed. Graded components of the student educational posters are part of this course. As outlined in the course syllabus, the students will demonstrate all of the affective objectives at the completion of the course.

CLINICAL HEMATOLOGY III**BIOH 484 - 2 credits**

This course is a continuation of Hematology II. The student will become proficient in performing routine testing of clinical specimens and body fluids. The student will demonstrate basic entry-level knowledge, skills, and work performance necessary for employment in a routine clinical hematology department. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CL. MICROBIOLOGY III AND MOLECULAR DIAGNOSTICS **BIOH 486 - 2 credits**

Students will perform entry-level competencies in identifying and susceptibility testing of pathogenic microorganisms isolated from human specimens in this course. They will also discuss identification tests for clinically significant yeasts, molds, parasites, viruses, and mycobacteria and perform testing of these pathogens when appropriate. Students will practice molecular diagnostic techniques where applicable. They will demonstrate their competencies in each of these areas by completing worksheets in preparation for taking quizzes and exams for the course. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL CHEMISTRY III**BIOH 487- 2 credits**

In this course, the student will become proficient in performing routine testing of clinical analytes in blood and body fluids. The student will demonstrate basic entry-level knowledge, skills, and work performance necessary for employment in a standard clinical chemistry laboratory. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

CLINICAL IMMUNOHEMATOLOGY III**BIOH 488 - 3 credits**

This course will allow the student to review and add to the knowledge gained in previous courses. Competency in correlating testing data with theory, gaining proficiency with routine testing, initiating troubleshooting techniques where appropriate, and quality management activities will be emphasized. Students will demonstrate entry-level competence by managing the daily aspects of a blood bank operation. At the completion of the course, the students will describe, discuss, correlate, and evaluate all cognitive and psychomotor objectives as outlined in the course syllabus. In addition, students will demonstrate all of the affective objectives as outlined in the course syllabus.

LABORATORY MANAGEMENT**BIOH 489- 1 credit**

In this course, general management policies, principles, and procedures necessary for a clinical laboratory's efficient operation will be emphasized. In addition, the federal and state regulations which govern the clinical laboratory will be discussed.

GENERAL INFORMATION Clinical Rotations

Housing: Students are responsible for finding and maintaining their housing.

Clinical Affiliate Student Orientation: Clinical sites provide students with appropriate policies and guidelines upon arrival. Students will also have other orientation activities as outlined by the standard new employee or student intern policies at each affiliate site.

- **Identification Badges or Name Tags** - Are assigned as required
- **Dress Code** - Students are expected to comply with the professional dress code established by each clinical site.
- **Study Space**- Students will have available a quiet space, computers, books, periodicals, and study materials
- **Parking**- Students will be instructed on appropriate parking areas.
- **Telephone Etiquette**- Students will be oriented to the hospital phone system, including the appropriate protocol for answering the telephone.
- **Breaks and Meals**- Appropriate times and places for meals and breaks will be discussed with students.
- **Laboratory safety**- site-specific safety training to ensure safety for themselves and others
- **Blood Borne Pathogens Exposure Control Plan** – Policies will be provided
- **Blood and Body Fluid exposure** - Policies will be provided
- **Personal protective equipment** - Provided as required

Scheduling: The clinical affiliate education coordinator will provide the student and the MMLS program with a proposed schedule within the first two weeks of the clinical rotation. Each site will organize the students' rotations as is most convenient to the site while fulfilling the courses outlined in the handbook.

Nontraditional Shifts: Students may be assigned shifts that are not traditional "day" shifts. These shifts are essential for enriching the students' laboratory experiences by demonstrating a hospital's full workload and staff management for a 24-hour facility. Nontraditional shift time should not exceed 40 hours during the students' clinical year.

Reporting of Laboratory Results: The state of Montana has a licensure law that requires all laboratory results must be reviewed and verified by a licensed clinical laboratory professional before they are reported. Students may not be held responsible for performing or reporting laboratory results.

Guaranteed Applied Experience: Students are guaranteed the basic laboratory experience outlined in the course syllabus. If a clinical site is unable to provide adequate experience in their laboratory setting, alternatives will be discussed with the student to guarantee that the student has knowledge of that procedure/equipment/method/etc. Options may include travel to an alternative site or equitable substitution.

- In the event, a clinical site cannot fulfill a commitment to training a student, an alternative site will be found.

Employment: Students may be offered work at the facility after hours and weekends while performing their clinical rotations. This work will be non-compulsory and performed outside rotation hours. Clinical affiliates will not schedule clinical rotations around a student's work schedule.

Site Visitation: At least once a year, a representative from the MMLS program will visit each clinical affiliate site. During the visit, the representative will meet with the student, the site education coordinator, and the site manager to discuss the student's progress or concerns about the curriculum requirements.

Professional Organizations: Students have the opportunity to become student members of the ASCLS and ASCP. Students will attend the ASCLS-Montana state meeting in the spring and participate in a poster session to present their research project. Support for the students at the meeting comes from ASCLS-Montana.

ACADEMIC POLICIES Clinical Rotations

Attendance Policy:

Students will report to their assigned clinical affiliate laboratory after completing the summer program. Students will be provided a schedule outlining the start date, holidays, and other critical academic deadlines dates for their clinical rotation and fall and spring semesters.

- Each clinical site is responsible for the student's training schedule and daily attendance.
- The MMLS policy is that students will be in scheduled rotations for 8 hours each day, 5 days per week. Only at the discretion of the education coordinator and the training supervisor are students allowed time to study and take quizzes during that 8 hour day.
- **Sick Time:** During your clinical hospital training (both semesters), **a maximum of three days will be excused for illness.** If additional time is required, students will make-up missed days at a later date.
 - In the event of illness, students must notify their clinical rotation supervisor at least 30 minutes before the scheduled arrival time.
 - The student will also notify the director or associate director of illness.
 - Students must schedule appointments outside of scheduled rotation time.
- **Personal days:** These may be arranged for pre-planned events such as weddings and family reunions. Students must complete the "Excused Absence" form (APPENDIX II), obtaining consent from the clinical rotation supervisor and the education coordinator.
- **Make-up Time:** Students will be required to make-up any missed days at a later date. Make-up time will be at the convenience of the department and rotation supervisors. Spring break week can be used for any missed days the student requires.
- **Extended Absence:** If a student should experience an extended illness or require more than five days off at any given time, the affiliate education coordinator, student, and a representative of the MMLS program will determine an appropriate course of action suitable to the circumstances.

Tardiness:

Students are expected to report to their assigned rotation on time. Consistent tardiness will be reflected in the student's performance evaluations. Time missed for tardiness will be made up at the discretion of the clinical site education coordinator. If chronic tardiness persists, the following actions will be taken:

- **Step 1.** The clinical education coordinator will issue a verbal reprimand.
- **Step 2.** If tardiness continues, a written reprimand from the clinical education coordinator and the MMLS program director will be given to the student and documented in the student's file.
- **Step 3.** If tardiness continues after these two steps, disciplinary action from the MMLS program will occur.

Scheduled Holidays: Holidays are at the discretion of the clinical facility. However, the MMLS program recommends clinical sites allow the following holidays:

Thanksgiving: Thursday and Friday

Winter/ Christmas Vacation: one week (minimum)

Spring Break: one week (this week will be used for make-up time if needed and may not be guaranteed.)

Progression/Grading for Clinical Rotations: Grades for each rotation will be determined by academic work (quizzes, worksheets, exams, etc., provided by the MMLS program) and performance and affective evaluations given by those instructing or supervising the student at the bench.

- **Academic achievement:**

Students must achieve a passing grade **as specified in each course syllabus.**

- A failed course will be repeated the following year, resulting in delayed graduation for 3+1 students. **Placement in the course the next year is not guaranteed.**
- Consistent failure to achieve the required grades may result in termination from the program and ineligibility to sit for the national certifying exams.

- **Late assignments:** Assignments for each course should be completed by the end of the clinical rotation associated with the course. Late assignments will be accepted at the discretion of the course instructor.

- **Performance and Affective Evaluation** forms will be provided for the principal disciplines as part of the third semester of that course or when the course is completed.
 - Evaluation forms will be completed by one or more rotation instructors or supervisors at the completion of a discipline. Students will have the opportunity to see and comment on the evaluation. They will be returned to the MMLS instructor for that discipline. The student's evaluation will account for approximately 25% of the course grade.
 - Credit for unsatisfactory performance may be earned by successful completion of one of the following:
 - Additional week(s) in the rotation of poor performance or
 - Repetition of an entire department rotation, to be completed at the end of the scheduled year. **In all instances, this will be only be allowed at the discretion of the education coordinator, rotation supervisor, course instructor, and the MMLS director.**

Research Project: Students will conduct a research project during their clinical rotations.

- The project may be:
 - A clinical case study (unique or rare in nature) or an actual clinical research project, such as investigating a specific problem.
 - A statistical comparison of methods for the lab and investigation of a new method or procedure not currently done by the lab.
 - Research involving a specific population of patients and the use of a specific test to diagnose a disease or syndrome.
- Once the research is done, an abstract is sent to the program director and associate director for approval.
- Then a poster is produced for display at a session at the ASCL-Montana spring meetings in April.
- Specific information on the research and poster presentation will be discussed during the summer session.
- The grade for this project is included in BIOH 482 Lab Practice III

Comprehensive Exam: At the conclusion of the clinical rotations, students will sit for a comprehensive exam. The final comprehensive exam is formatted to mimic a national certification exam for MLS, and it will include questions covering the entire year.

- Students must successfully pass the exam with a grade of 70% or better.
- The MMLS director will approve eligibility to take the national certification exam only after successfully completing the comprehensive exam.
- **Exam Failure:** The MMLS program director will talk with the student to discuss areas of weakness. The student will revisit objectives in those areas of weakness and will complete additional preparatory exercises. Whether the student has satisfied the requirement will be determined by the director of the MMLS program.

Certification Examination: After successfully completing all MMLS program courses and passing the comprehensive exam, students receive a certificate of completion. The certificate of completion and a Bachelor of Science degree provides student eligibility to take a national certifying examination.

The two certifying agencies are:

- American Society for Clinical Pathology (ASCP) Board of Certification (BOC)
<http://www.ascp.org/certification>
- American Medical Technologists (AMT)
<https://www.americanmedtech.org/Get-Certified>

Academic Misconduct Procedures: Should a student be caught cheating or involved in other misconduct, the clinical affiliate education coordinator will contact the MMLS program representative. If the MMLS program determines that cheating or misconduct has occurred, they will contact the student's clinical education coordinator.

- The MMLS Professional Program adheres to the Montana State University Academic Misconduct Policy and Procedures. The university academic misconduct policy can be read in its entirety at their website <https://www.montana.edu/provost/faculty/academic-misconduct.html>
- Cheating, plagiarism, endangerment of self or others, violation of patient confidentiality, poor attendance, and failure to meet academic standards, as stated in each course syllabus, are all grounds for termination.
- The degree of misconduct and input of the education coordinator will be considered when determining the course of action.
- Dismissal from the program or removal from the clinical affiliate site may result from terms put forth in each hospital affiliation agreement. It will occur in conjunction with the director of the MMLS program.

Causes for dismissal:

- Cheating
- Plagiarism
- Endangerment of self or others
- Violation of patient confidentiality
- Violation of the Health Insurance Portability and Accountability Act of 1996.
 - a. Disregard of the patient's right to confidentiality and/or privacy
 - b. Accessing patient/healthcare information not needed to complete laboratory duties
- Failure to comply with any institutional (University or clinical affiliate), department, program, or course policies/standards.
- Poor attendance
- Failure to meet academic or performance standards as stated in each course syllabus
- Non-disclosure or the inability to perform the essential functions
- Non-disclosure of pertinent information in the health history relevant to the safety of yourself or others

Student Complaint, Grievance, and Appeal Procedure: The following should be followed for complaints or grievances during the hospital clinical rotation. Grievances can be academic or non-academic such as discrimination or sexual harassment.

- **Step 1.** The student should first attempt to directly resolve the dispute or problem with the instructor or supervisor overseeing the clinical rotation.
- **Step 2.** If the grievance is not resolved, it should be submitted in writing to the clinical education coordinator. At that time, a meeting to discuss the grievance will be set up.
- **Step 3.** If the grievance continues to be unresolved, the student should submit the grievance in writing to the MMLS program director or associate director to arrange a meeting involving all parties. If the grievance remains unresolved, an impartial advisory committee will act on the grievance.
- **Step of Last Resort:** If the student has a grievance that cannot be resolved through the above processes, the student will be advised to appeal through their university right of appeal and grievance procedure. Specific policies are found at the following web site:

https://www.montana.edu/policy/student_conduct/#studentacademicgrievances

STUDENT HEALTH AND SAFETY POLICIES Clinical Rotations

Laboratory Safety Policies: Students receive specific instruction pertaining to laboratory safety for themselves and others and bloodborne pathogen safety principles and procedures as part of their orientation to the clinical site.

Health Insurance: As students of the Montana University System, each student is responsible for carrying their own health insurance for the program's entire year.

- The MMLS program requires each student to provide proof of insurance.
- Students are responsible for any medical costs incurred during their clinical rotations.
- The MMLS program and University are not responsible for injuries to the student unless there is proof of gross neglect.

Liability Insurance: Montana State University provides liability insurance for students attending hospital rotations in the MMLS program.

Emergency Healthcare: Students at hospital clinical rotations are guaranteed access to emergency care at their facility, as stated in each affiliation agreement.

TEACH OUT PLAN

Teach-Out Plan: In the circumstance of a catastrophic event that would limit the University's ability to offer the Medical Laboratory Science coursework or the program as a whole, the MMLS Professional Program will make a reasonable effort to assist the affected students. The program will help ensure that students will experience minimal disruption in the pursuit of their courses. Individuals affected by this circumstance will be notified as soon as possible and advised by faculty, advisors, and counselors regarding suitable options, including the transfer to comparable programs. In the event of permanent closure, the MMLS Program would follow protocol acceptable to NAACLS guidelines.

APPENDIX I

Bloodborne Pathogen Exposure Control Plan

Montana Medical Laboratory Science Professional Program Bloodborne Pathogen Exposure Control Plan

Purpose:

The purpose of this exposure control plan is to minimize or eliminate exposure to human blood or other infectious or potentially infectious body fluids to students, instructors, and all other employees. Other potentially infectious body fluids include semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, amniotic fluid, and any other substance visibly contaminated with blood.

Scope:

This plan applies to MMLS students and instructors that may come into contact with potentially infectious materials, as stated above, during the summer semester program. Students are expected to comply with the Bloodborne Pathogen Exposure Control Plan provided by their clinical site for the remainder of their time with the MMLS program.

Responsibility:

Instructors and their teaching assistants are responsible for ensuring that students comply with the provisions of this plan. The student must provide their own lab coat. The University is responsible for providing all other necessary supplies such as personal protective equipment (PPE), soap, disinfectant, eye protection, etc. The primary room for student use, Lewis Hall 204, will be supplied with these safety provisions. Instructors shall be responsible for the safe disposal of all contaminated waste.

Engineering and Work Practice:

Students and instructors shall employ Universal Precautions at all times to prevent contact with blood or other potentially infectious materials. All blood or other potentially infectious materials will be considered infectious regardless of the perceived status of the source individual.

1. Students and instructors must wash their hands or other skin with soap and water or flush mucous membranes with copious amounts of clean water as soon as possible following an exposure incident (such as an accidental needle stick or a splash of blood to the face/eyes).
2. Students and instructors must wash their hands immediately after removing gloves, lab coats, or other PPE.

The primary room for student use, Lewis Hall 204, has many handwashing stations with antiseptic soap and paper towels. The students should familiarize themselves with the use of the eyewash station that is available.

3. Needles shall be disposed of in labeled sharps containers provided. In the case of inappropriately disposed of sharps, instructors should be informed immediately.

Needles should never be recapped or reused in any capacity. Uncapped needles/sharps should only be moved using a mechanical device such as forceps, pliers, or a broom. Breaking or shearing needles is prohibited.

4. No eating, drinking, smoking, applying cosmetics or lip balm, or handling contact lenses is allowed in a work area.
5. No food or drinks are permitted to be kept in the classroom (Lewis Hall 204) or annex refrigerators, freezers, shelves, cabinets, or on countertops or benchtops.
6. All procedures involving blood or other potentially infectious materials must be performed in such a manner as to minimize splashing, spraying, splattering, and generation of droplets of these substances. Appropriate PPE must be utilized whenever possible.

Housekeeping:

Decontamination will be accomplished by using the disinfectant provided. Disinfectants will be either a 10% (minimum) chlorine bleach solution or another EPA-registered disinfectant solution.

1. All contaminated work surfaces, tools, objects, etc., will be decontaminated immediately or as soon as feasible after any spill of blood or other potentially infectious materials. The disinfectant must be left in contact with contaminated work surfaces or potentially infectious materials for at least ten minutes before cleaning. The instructor must be advised of any spills that occur.
2. Equipment that may become contaminated with blood or other potentially infectious materials will be examined and decontaminated before use, storing, or service.
3. Broken glassware must not be picked up directly with the hands. Sweep or brush material into a dustpan for disposal in a designated broken glass container.
4. Countertops will be cleaned with the disinfectant solution provided before and after class or whenever visibly soiled.
5. Known or suspected contaminated sharps shall be discarded immediately or as soon as feasible in containers that are closeable, puncture-resistant, leak-proof on sides and bottom, and marked with an appropriate biohazard label.
6. When containers of contaminated sharps are being moved from the area of use, the containers shall be closed before removal to prevent spillage or protrusion of contents during handling storage, transport, or shipping.
7. Containers of contaminated sharps shall not be opened, emptied, or cleaned manually or in any manner that would expose employees or students to the risk of percutaneous injury.

Other Regulated Waste:

Other regulated waste shall be placed in closeable containers, constructed to contain all contents and prevent leakage of fluids during handling, storage, and transport. Biohazard bags and containers will be provided. Students should consult with instructors if unclear what containers or disposal means are appropriate.

Instructors are responsible for the safe removal of contaminated waste. The waste must be closed before removal to prevent spillage or protrusion of contents during handling, storage, or transport.

MSU Safety and Risk Management will dispose of full sharps containers.

Laundry Procedures:

Laundry contaminated with blood or other potentially infectious material will be handled as little as possible. Students should contact their instructor as soon as possible in the event that a significant spill occurs. Laundry such as lab coats may be washed with a bleach solution. Heavily soiled garments may be disposed of and destroyed as biohazardous waste.

Personal Protective Equipment (PPE):

PPE shall also be utilized whenever there is a potential for exposure to blood or other infectious material. Students will be provided with gloves, face shields, eye protection, and other appropriate PPE's as needed. Students are responsible for providing their own lab coats.

All PPE will be chosen based on the anticipated exposure to blood or other potentially infectious materials. The protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach the clothing, skin, eyes, mouth, or mucous membranes under normal conditions of use and for the duration of time for which the protective equipment will be used.

Students and instructors must:

1. Utilize protective equipment in all potential exposure situations.
2. Remove protective garments that become penetrated by blood or other potentially infectious material immediately or as soon as feasible. Any clothing that becomes contaminated with any potentially dangerous substance must be changed as soon as possible.
3. All protective garments that are torn or punctured or lose their ability to function as a barrier to exposure should be replaced.
4. Remove all PPE before leaving the work area.
5. Place all protective garments and PPE in the appropriate designated area or container for storage, cleaning, decontamination, or disposal.

Hepatitis B Vaccine:

The Hepatitis B vaccination is highly suggested for students before entering the Montana Medical Laboratory Professional Program. After completing the Hepatitis B vaccination shot series, proof of immunity is confirmed and documented by a Hepatitis B blood titer level.

Students who decline the Hepatitis B vaccination must sign the OSHA required waiver indicating their refusal.

Post Exposure Evaluation and Follow-up:

All exposure incidents shall be reported, investigated, and documented. When a student incurs an exposure incident, it shall be reported immediately to their instructor, who will report to the program director or associate program director.

Following the report of an exposure incident, the student shall go to the Student Health Service (SHS), or Bozeman Deaconess Hospital if the event occurs outside SHS hours, for a confidential medical evaluation and follow-up, including at least the following elements:

- a. Documentation of the route(s) of exposure.
- b. A description of the circumstances under which the exposure occurred.
- c. The identification and documentation of the source individual. Identification is not required in situations where the source is impossible to isolate or prohibited by state or local law.
- d. The collection and testing of the source individual's blood for HBV and HIV serological status.
- e. Post-exposure treatment for the student, when medically indicated in accordance with the U.S. Public Health Service.
- f. Counseling.
- g. Evaluation of any current illness or health conditions.

The healthcare provider evaluating the student will be provided with the following information:

- a. A copy of this plan.
- b. A copy of the OSHA Bloodborne Pathogen regulations (29 CFR 1910.1030).
- c. Documentation of the route(s) of exposure
- d. A description of the circumstances under which the exposure occurred.
- e. Results of the source individuals' blood testing, if available.
- f. All medical records that apply to the treatment of the student, including vaccination status.

The student should receive a copy of the healthcare professional's written opinion within 15 days of completing the evaluation. The healthcare provider's written opinion for post-exposure evaluation and follow-up should include the following information:

- a. That the student was informed of the results of the evaluation.
- b. That the student was informed about any medical conditions resulting from exposure to blood or other infectious materials that require further evaluation of treatment.
- c. The healthcare professional's written opinion for Hepatitis B vaccination

All other findings or diagnoses will remain confidential and will not be in a written report.

All medical evaluations shall be made by or under the supervision of a licensed physician or by or under another licensed healthcare professional's supervision. An accredited laboratory must conduct all laboratory tests. All medical records will be kept in accordance with OSHA regulation 29 CFR 1910.1020.

Training:

Students are considered to be at risk for exposure to bloodborne pathogens and other potentially infectious materials due to the nature of their work with real patient specimens. Students will receive training at the beginning of the summer semester program. Students will receive training regardless of their Hepatitis B vaccination status.

The training will include at least the following elements:

1. An accessible copy of the regulatory text of OSHA 29 CFR 1910.1030 and an explanation of its contents.
2. A general explanation of the epidemiology and symptoms of bloodborne diseases.
3. An explanation of the modes of transmission of bloodborne pathogens.
4. An explanation of the MMLS program plan in addition to the plan in writing.
5. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood or other potentially infectious materials.
6. An explanation of the use and limitation of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices, and personal protective equipment.
7. Information on the types, proper use, location, removal, handling, decontamination, and PPE disposal.
8. An explanation of the basis for the selection of personal protective equipment.

APPENDIX II

Forms

Progression Policy Requirements

I, _____, understand the academic standards and policies of the Montana Medical Laboratory Science Professional Program. I am aware of the policies for progression in the program and what is required to complete the program. I realize that any questions regarding the program may be directed to faculty members or the program director at any time.

Signature_____ Date_____

Release Form

I, _____, agree to allow the Montana Medical Laboratory Professional Program to release background check report, drug test results, immunization, and health insurance records to any clinical site in which I will be training, as specified by each clinical site's affiliation agreement. I also allow the MMLS Professional Program to contact my first employer for NAACLS related information.

Signature_____ Date_____

Safety, Biohazard and Bloodborne Pathogen Policy

I, _____, have been informed about the Montana Medical Laboratory Science Professional Program safety rules and bloodborne pathogens exposure control plan. I understand them and will abide by them while working in the student laboratories.

Signature_____ Date_____

Print Name _____

Essential Functions

Essential functions are non-academic requirements of the MMLS program that students must demonstrate in order to successfully participate in the program and eventually seek employment in the field of Medical Laboratory Science.

I. Vision: Students must be able to read and interpret charts, graphs, and labels, read and interpret instrument panels and printouts, discriminate colors, hue shading or intensity and clarity, and read microscopic material and record results.

II. Speech and Hearing: Students must be able to communicate effectively and sensitively in order to assess non-verbal communication, adequately transmit information, and follow verbal or written communication.

III. Motor functions: Students must have the skills necessary to carry out diagnostic procedures, manipulate tools, instruments, and equipment, perform phlebotomy safely and accurately, and travel to a clinical site for practical experience.

IV. Behavioral Requirements: Students must possess the emotional health required for full utilization of the applicant's intellectual abilities, be able to recognize emergent situations, and take appropriate action.

V. Physical Requirements: Students must be able to complete fine, repetitive hand movement; twist and bend; handle flammable and infective materials; handle hazardous chemicals and electrical equipment; lift ten pounds; maintain prolonged sitting or standing positions; maintain concentration with distracting noises and proximity to fellow workers, tolerate unpleasant odors, work in buildings either above or below ground level; work in an environment without windows; and perform keyboarding.

VI. Critical Thinking: Students must be able to perform complex interpretative testing appropriately.

VII. Professionalism: Students must maintain a professional attitude and appearance.

I, _____, have read the Essential Functions list and feel that I am capable of performing all listed requirements.

Please consider the above functions carefully before signing. If it is determined you are unable to fulfill any function, dismissal from the program may occur.

Signature _____ Date _____

EXCUSED ABSENCE FORM
Montana Medical Laboratory Science Professional Program

Please Print:

Name: _____

Today's Date: _____

Dates requested off: _____

Reason for absence _____

Student Signature _____

Instructor / Rotation Supervisor signature:

Date approved: _____

Program Director or Education Coordinator signature:

Date received: _____

Date approved: _____

Confidentiality and Privacy of Patient Information

Dear student,

As a Montana Medical Laboratory Science Professional Program student who will be participating in a clinical laboratory internship in a health care setting, you have an ethical and legal duty to keep patient information confidential. The federal law, known as the Health Insurance Portability and Accountability Act of 1996 (HIPAA), forbids healthcare providers from disclosing patients' protected healthcare information, except upon written authorization by the patient or as otherwise permitted by the law.

Under the HIPAA Security and Privacy Regulations, hospitals and other healthcare providers are required to have the capacity to determine who is accessing their patient's protected healthcare information and to protect the privacy of that information. Failure to maintain patient confidentiality, accessing patient information without a need to do so for your work, and any other violation of policy may result in disciplinary action against the student.

Some general guidelines:

- Access patient information only if you need that information to do your work.
- Share or discuss patient information only if it is necessary to do your work and only in appropriate locations.
- Never share your identification number or password and log off computer sessions when you are away from a workstation.
- Follow hospital policies on confidentiality and privacy.
- Ensure confidentiality when you handle all protected health information.

Student Agreement/Acknowledgement of HIPAA Training

I have received and reviewed all the information that I was given about patient privacy and confidentiality. I understand there are rules regarding the use and disclosure of patient protected healthcare information, and I agree to abide by such rules and keep protected healthcare information confidential. I understand there are both educational and legal punishments if I violate this policy. I recognize that I may be immediately removed and excluded from this program if I do not comply with this Confidentiality and Privacy Agreement.

Print Name

Date

Signature