

STUDENT HANDBOOK

2022–2023 ACADEMIC YEAR

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Welcome to the Medical Laboratory Sciences Program!

This material is compiled to answer your questions concerning the general policies and procedures of the Wichita State University (WSU) Medical Laboratory Sciences (MLS) Program. It will serve as a reference and guide as you complete the requirements.

COMPETENCIES OF THE GRADUATE

As described by the certification agency Medical Laboratory Sciences, American Society for Clinical Pathology, the graduate must be competent in areas of Body Fluids, Blood Bank, Chemistry, Hematology, Immunology and Microbiology. The following competencies are assessed by the certification agency:

- x Applied knowledge of theory and principles related to:
 - o anatomy (Body Fluids)
 - o biochemistry (Chemistry and Hematology)
 - o education
 - o genetics (Blood Bank and Molecular Diagnostics)
 - o growth characteristics/diagnostic and infective forms (Microbiology)
 - o immunology (Blood Bank and Immunology)
 - o laboratory information systems

- x Evaluates:
 - o appropriate actions and methods
 - o corrective actions
 - o patient-related requirements
 - o possible sources of error or inconsistencies
 - o quality control procedures
 - o specimen-related requirements
- x Evaluates laboratory data to:

MEDICAL LABORATORY SCIENCES PROFESSIONAL PROGRAM

The professional curriculum in the SW MLS program is designed to provide the student with a strong background in the principles and methodologies involved in the various areas of Medical Laboratory Sciences. The fulltime professional curriculum is four semesters in length, the part time program is six semesters in length. The professional curriculum consists of 62 hours in MLS courses. A reduced-credit-hour option is also available for graduates of associate degree medical laboratory technician programs with ASCP certification; this 27 to 32 credit hour program offers activities which extend the medical laboratory skills and knowledge of the associate degree program. Upon satisfactory completion of any of these programs, the graduate will be eligible to sit for national certification exams.

ACCREDITATION

The Program is accredited by:

National Accrediting Agency for Clinical Laboratory
Sciences (NAACLS)
5600 N. River Rd. Suite 720
Rosemont, IL 60018-5119
Phone (773) 714-8880
<http://www.naacls.org/>

ADMISSIONS CRITERIA

Deadline for receipt by the MLS Office for all application materials, including references, is April 1 for all semester entry and November 1 for next spring semester entry. Students will be accepted for fulltime and part-time enrollment. Students must be fulltime during the Clinical Semester.

ACCEPTANCE is based on the following criteria:

A. Grade Point Average (GPA):

Minimum GPA of 2.5 on a 4.0 scale. Points are assigned as follows: Overall GPA x 10 = points. (Example; GPA of 2.5: 2.5 x 10 = 25 points) Note: All courses, which are pre requisites for the MLS program, must be completed with a grade of 2.0 or above on a 4.0 scale before entering the professional phase of the MLS Program.

B. References (3): Maximum of 5 points to be determined as follows:

Statements/evaluations support high recommendation of candidate – 5 points each

Statements/evaluations support recommendation – 4 points each

Statements/evaluations support recommendation with reservation – 2 points each

- C. Application Form: Maximum of 18 points may be assigned. Points will be based upon activities, such as those listed
1. Evidence of knowledge of health care (up to 6 points) such as:
 - Work/volunteer in a medical laboratory - up to 6 points
 - Work/volunteer in health care or patient care, other than medical laboratory up to 4 points
 2. Evidence of ability to lead or participate in a health care organization

Semester in a medical facility. MLS students participate in over 100 hours of student laboratory practice on the WSU campus before they are eligible to enter the clinical phase of the program. Student laboratory sessions provide the student with opportunities to practice basic clinical procedures on prepared specimens in a controlled setting. Student laboratories afford the student an opportunity to practice before practicing on actual patients.

During the Clinical Semester, the student rotates through the specialized clinical laboratory departments at the medical facility. The clinical experience provides opportunity for students to apply their newly acquired skills, knowledge and attitudes as a member of the health care team. Graduates of the program are awarded a BS MLS degree and are eligible to apply for national certification examinations.

Pre-Requisites of the Program

All students earning a baccalaureate degree at WSU

Full-Time Program Plan

Students may begin the program in fall or spring semester. The full time professional program is four semesters in length. Three semesters are completed on campus, the fourth and last semester, the clinical semester, is completed at a medical facility.

Fall Courses		Credit Hours
MLS 453	Clinical Chemistry/Urinalysis	8
MLS 463	Clinical Hematology	8
Total Hours		16
Spring Courses		Credit Hours
MLS 473	Immunohematology	8
MLS 495	Clinical Microbiology	8
Total Hours		16
Summer		Credit Hours
MLS 400	Clinical Laboratory Management	3
MLA 452	Principles of Urinalysis	2
MLS 494	Special Topics in Microbiology	3
Total Hours		8

The Clinical Semester: These courses are taken in the last semester of study and are offered every semester.

MLS 479	Applied Immunohematology	3
MLS 488	Core Lab Practicum	8
MLS 498	Applied Clinical Microbiology	3
Total Hours		14

Total Program Hours 54

Part Time (Half-time) Program Plan

Students may begin the part time program in fall or spring semester. The part time professional program is six semesters in duration. Five semesters are completed on campus and one semester is completed at a medical facility. The parttime option is not available during the summer semester nor the clinical semester.

Assigned semesters are scheduled to allow two part-time students to enroll in one full-time opening. **The program has only two, part-time student positions/semester. Applicants must apply as a part-time student if you wish to be considered.**

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Summer
MLS 400

Lecture rooms are assigned by either the College of Health Professions office or the University and are usually located in Ahlberg Hall. Student laboratories scheduled by the department in rooms 113, 125 and 127 of Ahlberg Hall.

x Analysis

- o Rosette and Kleihauer-Betke
- x Blood Donation
 - o Donor requirements
 - o Donor testing
- x Transfusion Therapy
 - o RBC
 - o PLT
 - o FFP
 - o Cryoprecipitated AHF
 - o RhIG
- x Transfusion Reactions
- x HDFN

MLS 494 Special Topics in Microbiology (3) 2R 2L The study of the medically important fungi, parasites, viruses, and other obligate intracellular organisms emphasizing their identification in the clinical laboratory. Discusses life cycles and their relation to the infection/disease process.

Content Outline of Special Topics in Microbiology

- x Fungi
 - o Yeast (e.g. Candida, Cryptococcus, Geotrichum, Malassezia)
 - o Dimorphic fungi (e.g. Blastomyces, Coccidioides, Histoplasma, Sporothrix)
 - o Dermatophytes (e.g., Epidermophyton, Microsporum, Trichophyton)
 - o Zygomycetes (e.g. Absidia, Mucor, Rhizopus)
 - o Opportunistic molds/septate hyaline molds (e.g., Aspergillus, Penicillium)
 - o Dermatiaceous molds
- x Mycobacteria
 - o Mycobacterium tuberculosis complex (e.g., tuberculos(i)-4.6 (c)-1.-26.o02 T12.3 (p(o)10.9 D1 Tf C

MLS 495 Clinical Microbiology (8) 6R 6L. Theory and practice of isolation and identification of human pathogenic micro-organisms, including (a) procedures for specimen processing in the clinical laboratory; (b) normal flora of human body sites; (c) morphological, cultural and serologic characteristics of medically significant microorganisms; and (d) antimicrobial principles and susceptibility testing techniques. Prerequisite: admission to the MLS program.

Basic theory and laboratory practice of a) procedures for specimen processing in the laboratory; b) normal flora of human body sites; c) morphological, cultural and serologic characteristics of medically significant bacteria, fungi and parasites; and d) antimicrobial principles and susceptibility testing techniques. Prerequisite: Admission to the MLS program.

Content Outline of Clinical Microbiol(i)-2 3s16 (e)-3.6 (nt)4.3 (O)JTJ 0.005 Tc -0.005 Tw 4.239 0 T9 0 T9 0 71.3

REQUIRED TEXTBOOKS

MLS 400 and 411 no text required

MLS 453 and 458 Clinical Chemistry, 8th ed. Bishop. 2018.

MLS 452 Fundamentals of Urine and Body Fluid Analysis, 4th Edition, Brunzel, Nancy A. 2018.

MLS 463 and 468 Clinical Laboratory Hematology, 4th

Coursework Expenses

Textbooks (used - new)	\$400-\$850
Liability Insurance (required for the clinical semester included with student fees)	\$ 13.00
ASCL Student Membership (optional)	\$ 25.00
CPR certification	\$ 30.00
KSCLS meeting expense *	\$ 45.00

* This expense will be waived if the MLS Student Association acquires necessary funding to attend the KSCLS meeting during the spring semester of the program.

Post-Program Expenses

National Certification Examination	\$240.00
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Financial Assistance

Scholarships and grants are available through the University, College, Department and Professional Organizations. For scholarship information on sponsorship program information, consult with the Program Director. Department scholarships are awarded in the fall and spring. Students may apply for department scholarships until they are in their first semester of the program.

POLICIES YOU NEED TO KNOW

SAFETY FIRST

Student laboratory and clinical setting experiences are important aspects of study for all programs of the College of Health Professions. Such study comes with responsibilities: you must protect yourself from infectious agents with which you may come into contact and your patients must be protected from agents which you may spread.

The student laboratory is a simulation of clinical experience. All safety procedures that are in place in a clinical facility are also in place in the student laboratories. During Clinical Semesters students will follow the policies and procedures of the clinical facility.

Rules for the Student Laboratory

Students and faculty in the MLS program are expected to adhere to the following rules and policies.

8. Maintain a clean and orderly work station. Wipe down bench tops with disinfectant at the completion of a lab session. Clean up spills immediately.
9. Dispose of waste in the proper container:
 - a. Dispose of contaminated needles and sharp objects in the biohazardous sharps containers.
 - b. Dispose of broken glass in the container that is labeled for broken glass.
 - c. Place dirty glassware in containers for wash.
 - d. Do not dispose noninfectious items in biohazardous containers.
10. Clean microscope lenses and cover microscopes after use. Turn off equipment that will not be used after the end of the lab session as directed by your lab instructor. Return reagents and supplies to their appropriate storage place.
11. Cooperate with lab instructors and your peers to maintain a safe, clean work area.

In addition to the above we will be following the CDC guidelines for Lab Safety Practices at the following url: <https://www.cdc.gov/coronavirus/2019-ncov/lab/safetypractices.html>

Accidental Exposure Protocol

Students should be completely familiar with the safety precautions and other material detailed in the student safety manual kept in the student lab. The clinical laboratory can be a safe place to learn and work when appropriate procedures and proper equipment are utilized. However, in the event of accident, injury, or exposure to a biohazard or chemical hazard, the following protocol should be implemented:

- x Immediately notify the faculty member or clinical supervisor (during clinical rotations).
- x Perform appropriate first-aid procedures to include washing the skin or wound with soap and water or flood the affected mucous membranes with water.
- x If the exposure involves potential airborne pathogen contact to intact skin or mucous membranes (such as a needle stick or splashing in the eyes), or a chemical exposure or other serious injury, the student will be immediately escorted to Student Health. Assist the laboratory instructor in completing two incident reports for ALL injuries. See link below for Student Health exposure report:
 - o https://www.wichita.edu/services/studenthealth/_documents/Exposure_Report-Rev_ada02_20.pdf
- x Comply with medical advice for follow-up care.

If the incident occurs during clinical rotations, the student should notify the Clinical supervisor and the protocol of the facility will be followed which may include going to the emergency department of the facility in which they are training. The clinical student should inform the MLS program office as possible and all costs associated with this event will be the responsibility of the student.

TORNADO WARNING POLICY

It is the policy of Wichita State University that all classes (including examinations, lectures, and laboratories in progress) and activities on campus will be officially suspended when the City of Wichita is included in an officially declared tornado warning. Faculty, staff, students, and visitors shall be instructed to seek appropriate shelter for the duration of the warning. Evacuation plans are posted in all rooms. The MLS laboratories, Ahlberg Hall rooms 113, 125 and 127, are officially- declared tornado shelters.

Urine Test for Drugs of Abuse- Documentation of negative tests for drugs of abuse is required before the start of the **Clinical Semester** at some affiliated site facilities

Covid-19 vaccine – Documentation of two shots and booster

Health Insurance

Our affiliation agreements with clinic affiliates require documentation of health insurance coverage throughout the Clinical Semester Application information for insurance may be obtained through WSU at the Student Health Services or the MLS office

Pregnancy

Pregnant students are required to submit a physician's statement to the cl6gD7469 (a)-1.7(d t)d (i)6.2 ()2 (v)1t>e

facility. Students **will not** be placed at a clinical site until all compliance documentation is on file in the MLS office

Student Laboratory and Clinical Semester Attire

During student laboratories and the Clinical Semester

- x Official WSU MLS scrubs will be worn

the WSU logo with the wording; **allow 7-21 days from order to receipt of scrubs at the Shockerstore.** Scrubs should be purchased for use during all student labs and all ~~clinical~~ clinical days.

Students will adhere to all policies of the clinical affiliate, including dress code, when on clinical rotations. In the event facilities have less stringent ~~policy~~ policies than the WSU policies stated in this manual,

POLICIES FOR ACADEMIC PROGRESSION

The following policies will be followed concerning student progression in the professional phase of the WSU MLS program.

Enrollment

A student must maintain a

STUDENT CONDUCT

Students are expected to read and adhere to the pol

All specimens, lab results and interpretations of lab results are ultimately the property of the patient.

THE CLINICAL SEMESTER

The Clinical Semester for the WSU ML program consists of 3 rotations, Core Lab, Clinical Microbiology and Blood Bank. The College of Health Professions has affiliation agreements with many clinical sites. Some sites are program specific such as PT or PA. Please let us know at the beginning of the program if there is a particular site that you wish to complete your clinical practicum as we may or may not have an affiliation agreement with your preferred clinical site. This is especially true if you would like a site outside of Kansas. It may take upwards of a year to obtain an affiliation agreement with particular clinical sites.

Current Clinical Affiliates (at the time of printing of this handbook)

Affiliated Medical Services Wichita, KS
American Red Cross Wichita, KS
Ascension Via Christi Hospital Manhattan, KS
Ascension Via Christi St. Francis Wichita, KS
Children's Mercy Hospital Kansas City, MO
Clinical Reference Laboratory Lenexa, KS
Hutchinson Clinic Hutchinson, KS
Hutchinson Regional Medical Center- Hutchinson, KS
Lawrence Memorial Hospital LMH Health Lawrence, KS
McPherson Hospital McPherson, KS
Mitchell County Hospital Health System Beloit, KS
Newman Regional Health Emporia, KS
NMC Health- Newton, KS
Olathe Health- Olathe, KS
Quest Diagnostic Laboratory Midwest Region- Lenexa, KS
Regional Medical Laboratory (JPMMC) Tulsa, OK
Research - 04 250.92 3le ET Q q 77.64 250.92 37-0.9 (M)-1.4 0 040 g /TT2 1 Tf

COURSE DESCRIPTIONS FOR CLINICAL ROTATIONS

Core Lab Pracw 14.04 0 0fN5 (w 14.04u)-2 (OmTc 0 Tw 4.Tw 15.96 04(317(P)-12.4: MS)§ (I

The suggested division of time during the immunohematology rotation is:

- 3 weeks at a medical center plus 3-5 days at the Red Cross center (Wichita area only); OR
- 4 weeks at a regional medical center

Applied Clinical Microbiology Rotation: MLS 498 (3 credit hrs.)

Clinical Microbiology rotation includes interpretation and work-up for body site cultures, automated methods, stain interpretation, antimicrobial susceptibility testing, quality control, mycology testing, parasitology testing and virology testing, as available at the clinical site. The suggested division of time during the clinical microbiology rotation is:

- 2

5. Recognize normal vs. abnormal WBC, RBC and platelets on a blood smear.
6. Correlate CBC findings with WBC differential findings.
7. Recognize specimen problems and respond appropriately.
8. Make a good peripheral blood smear.
9. Use a microscope.
10. Perform and respond to delta check outliers
11. Recognize and respond to critical values.
12. State the basic operating principles of hematology/hemostasis instrumentation.
13. Use Standard Precautions when handling specimens.
14. Perform counts and cell differentiation on CSF and other body fluids. Respond appropriately to abnormal results.
15. Collect adequate specimens for procedures.
16. Perform and respond appropriately to QC findings.

Applied Chemistry:

1. State the purpose and common uses of SOP.
2. Perform and respond to delta check outliers
3. List appropriate reference ranges for test and patient.
4. Respond appropriately to abnormal and critical results.
5. Collect adequate specimens for procedures.
6. State the difference between serum, plasma and whole blood in chemical analysis.
7. State the procedures for drawing peak and trough drug levels.
8. Recognize specimen problems and respond appropriately.
9. State the rules of specimen rejection
10. Perform and respond appropriately to QC.
11. Pipette and make dilutions accurately.
12. State the purpose of calibration and respond appropriately to calibration problems.
13. Correlate chemistry results with clinical implications and respond appropriately.
14. Define common abbreviations: SOP, QC, QA, STAT, QNS, SST, BMP, CMP.
15. Correlate macroscopic findings and microscopic finding in urinalysis.
16. State the basic operating principles of urinalysis instrumentation.

Applied Immunohematology

1. Identify specimens correctly 100% of the time.
2. Perform type and screen.
3. Perform crossmatch.
4. Perform DAT.
5. State the differences between forward and reverse typing.
6. Perform antibody identification in both tube and gel.
7. Select appropriate blood units based on above testing.
8. Follow procedures.
9. Define antibody and antigen.
10. State shelf life requirements for blood bank units.
11. State the importance of testing for MRSA, VRE and C diff in blood bank

Applied Clinical

LABORATORY AND CLINICAL SEMESTER ATTIRE

- Official WSU MLS scrubs will be worn without accessories
- Shoes that protect the entire foot including the toe and heel should be worn
- Long hair should be secured so as not obstruct vision or become a biohazard
- Dangling jewelry, which may create a hazard, should not be worn in the laboratory
- Students are expected to maintain proper hygiene
- Students will adhere to requirements of their rotation site

PROFESSIONALISM

Students will follow the safety and confidentiality policies of the facility at which they are completing a rotation. Students will maintain a professional attitude during all aspects of the MLS program. Professional attitude includes: accepting responsibility for didactic and laboratory course work confidentiality, academic integrity, ethics, and respect for others at all times. Non-professional behavior includes: noncompletion of tasks, failure to follow instructions, verbal abuse including swearing, rudeness, overly argumentative, and violation of copyright policies.

Conduct

Conduct in direct violation of professional ethics, standards and conduct in direct violation of the policies and procedures of either the clinical affiliate or MLS program, will result in the immediate removal of the student from the clinical assignment and may result in termination from the professional program.

Personal Electronic Devices

Students may not bring personal electronic devices into the clinical laboratory. Personal electronic devices are defined as electronic, portable, entertainment, communication, or information storage devices, such as cell phones, computers and media players. Students may not use the communication devices present at the clinical affiliate facility for purposes other than patient care. Students may request permission from the clinical instructor to carry a personal electronic device under unusual circumstances, such as monitoring a sick child at home.

Holidays and Student Breaks during Clinical Rotations

Student holidays (Labor Day, Martin Luther King Day, etc.) conform to the holiday schedule of the clinical affiliate for the current rotation. Student breaks (spring break, winter break, etc.) are at least one week in length and are listed on the rotation schedule.

Reflection Classes and Comprehensive Examination Fridays

On assigned Fridays during the Clinical Semester, the student will return to WSU for reflection and review classes in the morning and comprehensive exams in the afternoon. The student will not go to the clinical site on these Fridays. Students, who are completing clinical rotations that are over 100 miles from WSU, may request to leave 2 hours early on the Thursday before the Friday exam in order to travel.

Clinical Rotation Evaluation Checklists

The student in the clinical facility is expected to develop required competencies ~~Measure~~ ~~area~~. Therefore, it is expected that the student will improve their performance during the clinical experience as a result of their learning experience. Evaluation is based on observation of skills and behavior during the rotation period, and by written ~~and~~ quizzes which help the clinical instructor determine competency development. Final evaluation is documented on Rotation Checklists and signed by clinical instructors and the student. These checklists are sent, or brought by the ~~student~~ ~~sealed, signed envelope~~, the school. These evaluations contribute to the grade for clinical rotation courses.

MEDICAL LABORATORY SCIENTIST STUDENT SURVIVAL GUIDE

(From Previous MLS Classes to You)

I. Parking

- a. DO NOT BE LATE**
- b.** Plan to arrive 15 minutes before 8 am in order to get a parking spot
- c.** If you have problems in the morning, give the office a call and let them know. It is much more likely to be forgiven if you do so. Put the number on your speed dial ~~978~~ 6-3146.

II. Study Tips

- a.** Exchange e-mails and phone numbers with your classmates. Find out who lives close to you and start study groups (you can reserve rooms in the library).
- b.** Start good study habits now. Meaning: **STUDY YOUR NOTES EVERY NIGHT!!! DO NOT CRAM, IT WILL NOT WORK.** First, the volume of information is too large to do so and second, we actually need this stuff in our profession, so learn it.
- c.** Find what works for you early. The typical student purchases 2 ½" to 3" binders for each class (no exaggeration – you will have a lot of notes).
- d.**

III. Hints

a. General information

Come to class, seriously. Don't be late, it's rude and unprofessional

PAY ATTENTION, TAKE NOTES, STUDY A LITTLE BIT EVERY DAY

b. Plan for full days Ask questions

c. Pick out important information in test questions

d. The Clinical Semester

The Comps: will cover all material from the program, including reading assignments from the texts. Save everything.

Clinical days: Arrive to the site on time and be ready to work

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