Student Learning Outcomes
Bachelor of Science in Medical Laboratory Science
Department of Health Sciences
College of Applied Science and Technology

Student Level Outcomes (Professional Competencies):

At entry level, a graduate of this program will have basic knowledge and skills in:

A. Application of safety and governmental regulations and standards as applied to clinical laboratory science;

B. Principles and practices of professional conduct and the significance of continuing professional development;

C. Communications sufficient to serve the needs of patients, the public and members of the health care team;

D. Principles and practices of administration and supervision as applied to clinical laboratory science;

E. Educational methodologies and terminology sufficient to train/educate users and providers of laboratory science;

F. Principles and practices of clinical study design, implementation and dissemination of results;

G. Theoretical knowledge and technical skills in the areas of clinical chemistry, hematology/hemostasis, immunology, immunohematology/transfusion medicine, microbiology, urine and body fluid analysis and laboratory operations and the ability to integrate and interpret data

Medical Laboratory Science Program Assessment Plan

The Medical Laboratory Science Program utilizes a multiple-measures approach to program quality management on a course, program, departmental, and university level. The program has adopted seven competencies that the faculty feel graduates of the program should be capable of performing upon graduation from Illinois State University's Medical Laboratory Science Program. A table identifying each competency, when, how each is evaluated is seen below.

Summary Table of Evaluation of MLS Competencies

Competency	Course(s)	Evaluation Technique	Frequency	Evaluator(s)
A	HSC 260, 261, 262, 263, 308	MediaLab assignments chemical hygiene; blood borne pathogens	Once/ semester	Course Instructors
	HSC 263	Case studies	Once/class	Course Instructor
	HSC 308	Exam questions on bioterrorism	Once/class	Course Instructor
	Professional practice	MediaLab assignments Medicare; HIPAA	Once/class	Program Director
B	HSC 260,261, 262, 263, 308	Professional behavior	As needed	Lab instructors
	Professional practice	Professional behaviors rubric	Every 2-6 weeks	Clinical faculty
	HSC 316	Research ethics	Every week	Course Instructor
C	HSC 263	Phlebotomy lab exam	Once/class	Course Instructors
	HSC 325	Case studies	Every 2 weeks	
D	HSC 325	Case studies; group discussions	Every 3-4 weeks	Course Instructor
E	HSC 325	Case studies; group discussions	Every 3-4 weeks	Course Instructor
F	HSC 316	Website critiques; literature critiques	Every 3-4 weeks	Course Instructor
G	All didactic courses	Unit Exams	Every 3-4 weeks	Course Instructors
	Online Courses	Comprehensive Exam	Once	
	Certification Scores	Certification Exam	Once	ASCP or AMT

Competency A. Application of safety and governmental regulations and standards as applied to medical laboratory science

The MLS Program assesses the students' knowledge of governmental regulations and standards as several points in the curriculum. Students are required to complete MediaLab, Inc. modules on blood borne pathogens and chemical hygiene in their first semester of MLS course work (HSC 261 Introduction to Clinical Hematology, HSC 262 Introduction to Clinical Chemistry and HSC 263 Introduction to Clinical Immunology). Students must earn a score of 70% or higher on completion of the modules to be able to participate in student labs that are part of these courses. In HSC 263 students are given case studies covering blood borne pathogens and safety issues. Points earned for successfully completing the case studies are calculated into the final course grade. HSC 308 Introduction to Clinical Microbiology, students are assigned a MediaLab, Inc. module on bioterrorism and government regulations related to that topic. Students are required to answer exam questions on the topic and those points are calculated into their final grade. Before beginning their professional practice experience, students must complete MediaLab, Inc. modules covering HIPAA and Medicare/Medicaid law. Students are not allowed to attend professional practice until they earn a grade of 70% or higher on the modules.

Competency B: Principles and practices of professional conduct and the significance of continuing professional development

The MLS program instituted a new plan to help foster professional behaviors during the junior year of study. During the initial laboratory session, the faculty will provide students with a list of acceptable behaviors they will be expected to model during lab classes. Students who exhibit an unacceptable behavior will be issued a deficiency card. The card will list the infraction and be attached to the student's lab report. The student's score for that laboratory report will be reduced by 20%.

During professional practice, students are evaluated on professional conduct as part of the evaluation in each for of the six subject areas. Professional conduct makes up 25% of each of the six professional practice grades.

Competency C: Communications sufficient to serve the needs of patients, the public and members of the health care team

Each cohort of students begins in the fall of the school year. During the fall semester student take HSC 263 Introduction to Clinical Immunology. Students learn about phlebotomy during the laboratory portion of the course. They practice communication skills through role playing with other students, and case-based scenarios. Students are evaluated using case studies and a practical exam.

MLS students learning additional communication skills in HSC 325 Laboratory Education and Management, including communications with government agencies, accrediting bodies, physicians, nurses, patients and other laboratory personnel. Professional writing, interpersonal communication, team building, conflict management, customer satisfaction and telephone etiquette are specifically addressed. Students are evaluated using case studies and other assignments.

Competency D: Principles and practices of administration and supervision as applied to medical laboratory science

Laboratory management and supervision are addressed in HSC 325 Laboratory Education and Management. Specific topics covered include safety, writing procedures, budgeting, workload recording, employee scheduling, evaluation of new test methods, quality management, problem solving, time management, laboratory information systems, accreditation, employee evaluation, employee discipline, and continuing education are among the topics addressed. Students are evaluated by use of written case studies and other assignments.

Competency E: Educational methodologies and terminology sufficient to train/educate users and providers of laboratory science

Students learn about training and education in the HSC 325 Laboratory Education and Management course. Topics covered include establishing a continuing education program, construction and delivery of an instructional unit and evaluation for an instructional unit. Students are evaluated by use of written case studies and other assignments.

Competency F: Principles and practices of clinical study design, implementation and dissemination of results

Student learn about research design in HSC 316 Research Design in Clinical Laboratory Science. Students learn about different ways that research is performed and how it is disseminated in the literature. Students are assigned readings, both good and poor, that they are asked to critique.

Competency G: Theoretical knowledge and technical skills in the areas of clinical chemistry, hematology/hemostasis, immunology, immunohematology/transfusion medicine, microbiology, urine and body fluid analysis and laboratory operations and the ability to integrate and interpret data

Students gain theoretical knowledge and technical skill in the various subspecialties of laboratory medicine through their professional course work. The professional courses can be divided into three groups, the introductory courses, professional practice and the online courses.

The introductory courses include HSC 260 Introduction to Clinical Immunohematology, HSC 261 Introduction to Clinical Hematology, HSC 262 Introduction to Clinical Chemistry, HSC 263 Introduction to Clinical Immunology, HSC 301 Introduction to Coagulation and Hemostasis, HSC 302 Clinical Biochemistry, HSC 308 Introduction to Microbiology. All these courses have a lecture in which fundamentals of each subspecialty are covered. Students are evaluated using quizzes, take-home exercises, case studies and exams. Exams typically occur 3-4 times a semester. Five of these courses; 260, 261, 262, 263 and 308, have laboratory sessions. In the laboratories, students have hands-on experience with basic laboratory techniques. Pipetting, serial dilutions, basic quality control, manual chemistries, manual immunology tests, white cell differentials, bacterial isolation and identification are some of the techniques covered in the laboratory sessions. Laboratory skills are evaluated through observation, lab reports, multiple choice exams and practical exams.

The professional practice courses are where the students learn to work with the more sophisticated laboratory equipment. Students are assigned to hospitals throughout the state of

Illinois. The MLS Program provides the hospital sites with objectives that the students are to accomplish during the professional practice semester. The MLS Program also provides the evaluation tool which the hospitals use to evaluate the students. The forms grade the students on both technical skills and professional behaviors. These evaluations are done six times during the semester, once for each technical area, immunohematology, hematology, chemistry, serology, urinalysis and microbiology. The MLS faculty review the evaluations once a year.

The online classes are a continuation of the introductory courses. They are taken during the senior year in the opposite semesters as professional practice. The courses cover advanced topics in all the major laboratory specialties. The online courses also contain a review component to better prepare students for their certification exam.

Summary Table of Other MLS Program Evaluation Activities

Evaluation Programs	Responsible Authority	Evaluators	Evaluation Techniques	Frequency
Course Evaluations	Department Chairperson	Students	Performance evaluations	Every Semester November; April
Annual Review	Department Chairperson	Department Faculty Status Committee (DFSC)	Portfolio	Annually January
Faculty Meetings	Program Faculty	MLS Faculty	Open Discussion	Monthly
Senior Exit Surveys	MLS Program Director	Exiting Seniors	Survey Questionnaires	Annually April
Alumni Surveys	MLS Program Director	1st and 5th year Graduates	Survey Questionnaires	Annually May
MLS Advisory Committee	MLS Program Director	Representatives of affiliated hospitals	Open Discussion	Annually September
Professional Practice	MLS Program Director	Students	Summary report	Every Semester November; April
Annual Update Report	University Assessment Services	Assessment Services personnel	Feedback Form	Annually May
Program Assessment Plan	University Assessment Services (UAS)	Assessment Advisory Council	Rubric	Every 7 years
Program Review	Illinois Board of Higher Education (IBHE)/Illinois State University	University Committee	Self-Study	Every 7 years
NAACLS Accreditation	National Accrediting Agency for Medical Laboratory Science	MLS Peer Reviewers	Self-study and Site visit	Every 10 years 2025

Each of these assessments are discussed in more detail below.

Faculty Evaluations

The program faculty is evaluated on three levels: student, peer/self-assessment and professional.

Student Course Evaluations:
Students are required to complete faculty evaluations at the completion of every course. The College has selected the IDEA evaluation tool. The IDEA tool has been validated and provides useful feedback to instructors. IDEA is now using an online format. Students can complete the evaluation on their smart phones, laptops or other devices. This assessment process is "blind" to promote student honesty on the evaluation. Individual faculty data are compared to aggregate faculty data. From these data, the MLS faculty identifies opportunities for improvement in their individual courses and instructional practices. Faculty members are required to develop a corrective action plan to improve their performance in future courses.

Annual Review:
Every January, each faculty member is required to develop a self-assessment document or portfolio for review by the department chairperson and the Department Faculty Status Committee (DFSC). Areas of evaluations include teaching, scholarship and service activities. The teaching section of the self-assessment document includes student evaluation of courses, chairperson evaluation of instruction, examples of new or innovative teaching methods and other materials relevant to good teaching. In the scholarship section of the self-evaluation, the faculty member provides information regarding publications, presentations, grants and other scholarly activities produced in the past year. Finally, in the section on service, faculty members discuss their service activities at the departmental, college, university, professional and community levels. The self-assessment document is submitted to the DFSC for review. Their evaluation of the document impacts the faculty member's retention, salary, promotion and tenure status.

Professional Evaluation:
Professional assessment is accomplished through each faculty's presentations and publications.

Program Faculty Meetings

The MLS Program faculty meets monthly to discuss ongoing program management and curricular issues. Issues are identified and recommendations are presented for modification or correction. The curricular changes are reviewed at the department, college and university level before implementation. The department chairperson and the MLS Advisory Committee monitor program management and structure issues. In the fall of each year the program faculty reviews its strategic plan. The faculty selects and prioritizes objectives for the upcoming year. The objectives are stated as action items and the responsible party is identified. In the spring of each year, the strategic plan is reviewed to determine which of the objectives have been achieved.

Senior Exit Surveys

In 2015, the program began surveying the students about to graduate from the program. The survey asks students to rate their satisfaction with various aspects of the Program such as class size, classrooms, laboratory equipment, textbooks, academic advisement and professional practice. Student were also asked to rate their confidence level for each of the competencies identified by the Program as the desired student outcomes. The results are shared with the Department Chairperson and the MLS Advisory Committee.

Alumni Evaluations

In 2019, the program director began to survey graduates 1-year after they left the program. The graduates are again asked to rate their satisfaction with the same aspects of the Program that they were asked to evaluate as exiting seniors. They again are asked rate their confidence with the MLS Competencies. This allows the faculty to compare the group's satisfaction and confidence level at two points to see if opinions have changed. The 1-year survey also asks graduate about employment and graduate school enrollment.

In 2020, the program director initiated a second survey of alumni 5-years post-graduation. This survey asks grads where their career has taken them and whether they continue to work in the laboratory or a related field.

MLS Advisory Committee

The MLS Advisory Committee advises the program faculty regarding goals, curriculum, recruitment, and assessment on an annual basis. The members of this committee are representatives of the hospital affiliates who provide professional practice opportunities to the MLS students. The committee also includes employers of program graduates. All the committee members have experience in the MLS profession, as well as, first-hand knowledge of the professional skills and abilities required of program students. The MLS Advisory Committee members are active participants in providing program evaluation and guidance. Based on the committee's recommendations, the program structure and curricular content have been reviewed, revised, and implemented over the past five years.

Professional Practice

Every student who graduates with a degree in Medical Laboratory Science must participate in professional practice. These professional practice experiences have two main objectives. The first is to build upon students' technical skills and knowledge. The second is to provide students with a "real world" learning experience where the students can apply their knowledge and skills performing tasks in an actual work setting. Both clinical experiences occur in acute care hospital settings. They are prescriptive, structured experiences, which expose the students to all the basic functions and responsibilities of a Medical laboratory. Student performance evaluations

are required for each of the functions and tasks the student performs. Students take exams and are assigned grades for their performance in the clinical setting. Students also evaluate the instructors at the professional practice sites.

The program faculty reviews the student evaluation results from these clinical experiences on an annual basis. Faculty, in conjunction with the MLS Advisory Committee, identify areas where student performance is unsatisfactory or has potential for improvement. Since all the students complete similar experiences, this review allows faculty to determine if a majority of students are performing satisfactorily in a selected area. The faculty reviews provide an ongoing opportunity to evaluate the current curricular content through student performance in the "real world." It also provides the faculty with the opportunity to develop new instructional strategies to improve student performance by having the students bring their individual experiences into the classroom.

Annual Update

The UAS requires each program to submit an Annual Update Report. In the report the program must summarize the data collected during the previous year, identify constituent groups used to collect the data (alumni, advisory councils, etc.) and report of any action taken based on the data collected.

Program Assessment Plans

By fall of 2002 the UAS required that all academic programs submit an assessment plan. These plans are reviewed by the Assessment Advisory Council (AAC). The plans must contain the critical elements consistent with effective educational practice, as well as Goal 5 of the IBHE *Illinois Commitment*. The ACC is composed of faculty members from across the University who have expertise in assessment. The plans are evaluated using a rubric developed by UAS. The plans are reviewed again 2 years prior to the Program Review process (see below).

Program Review

The Illinois Board of Higher Education (IBHE) mandates that all state sponsored universities and colleges periodically review baccalaureate degree programs. At Illinois State University, primary responsibility for quality of academic programs resides with faculty; review of existing academic programs resides with the Academic Planning Committee, an external committee of the Academic Senate. Program Review is carried out in a manner compatible with institutional academic planning mechanisms and guidelines established by the Illinois Board of Higher Education (IBHE).

The Health Sciences Department initiates the program review process by conducting a thorough self-study of the academic program. In the Medical Laboratory Science Program, the program director coordinates the self-study process culminating in a self-study report. Faculty,

students and staff in the department must participate in the program review self-study process in a meaningful way as documented in the self-study report.

The Academic Planning Committee serves as the primary review committee for program reviews. The Academic Planning Committee writes a summative report of the program which includes recommendations for program development and modification that serve to inform the Department or School, College and University on decisions regarding resource allocation, faculty staffing, program focus, admissions standards, curricular content, and other academic matters. The Academic Planning Committee submits the summative reports to the Academic Senate as part of the University's Academic Plan. The Academic Plan then moves forward to the Illinois State University Board of Trustees for approval before being submitted to the Illinois Board of Higher Education.

NAACLS Accreditation

The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) accredits the Medical Laboratory Science Standard curriculum. The program at Illinois State University was NAACLS accredited for the first time in 1998 for five years, the maximum for first-time accreditation. Every 10 years NAACLS requires reaccreditation of programs. The process consists of two parts. The first is a Self-Study Report in which the MLS faculty evaluates the program by comparing it to a series of standards set by NAACLS. The second part is a site visit in which peer MLS educators visit the campus to verify the Self-Study Report, review additional documents and assess program quality on site. The Self-Study Report is submitted to National Accrediting Agency for Clinical Laboratory Sciences for review and evaluation. Following review of the report, a team of 2-3 MLS educators will visit the campus to further evaluate the program. The site visit team will write a final report that is sent to the NAACLS Board of Directors. Based on the report, the board may grant accreditation for a maximum of ten years provided no partial or non-compliance citation were found in the current review cycle. If granted ten-year accreditation, the program would be required to file a "5 Year Interim Report." If citations are found, the Board can reduce the accreditation period to five years or less. The program was accredited for 10 years beginning April 2016.

Timeline for Evaluation Activities

August	September	October	November	December
• MLS Faculty Meeting	• MLS Faculty Meeting • MLS Advisory Committee	• MLS Faculty Meeting	• MLS Faculty Meeting • Course Evaluations • Professional Practice Survey • Senior Exit Survey	• MLS Faculty Meeting

January	February	March	April	May
• MLS Faculty Meeting • Annual Faculty Review	• MLS Faculty Meeting	• MLS Faculty Meeting	• MLS Faculty Meeting • Course Evaluations • Professional Practice Survey • Senior Exit Survey	• Annual Update Report

Every 7 years: Update Assessment Plan
IBHE Program Review

Every 10 Years: NAACLS Accreditation