

1. Departmental purpose and relationship to the University mission.

a. University Mission:

The mission of Wichita State University is to be an essential educational, cultural, and economic driver for Kansas and the greater public good.

b. Program Mission:

The mission of the department of Medical Laboratory Sciences (MLS) is to improve the health of the community by

- Educating resourceful, adaptable, and well-prepared individuals to serve and lead the medical laboratory sciences profession
- Contributing to the body of knowledge for Medical Laboratory Sciences, and
- Facilitating life-long learning for Medical Laboratory Scientists.

c. The role of the program and relationship to the University mission: Explain in 1-2 concise paragraphs.

The program strives to contribute to the mission of the university by assisting the university to meet the goals of the WSU Strategic Plan in applied learning, empowering students, welcoming diverse opinions, embracing interprofessional education and piloting new techniques in digital teaching. Students in the Medical Laboratory Sciences Program complete a semester of applied learning experiences in healthcare facilities across Kansas. These experiences are the capstone of the curriculum, which begins with introductory general education and digitalized program prerequisites, continues with didactic and student laboratory preparation on WSU campus, and ends with application in a healthcare facility. Through applied learning experiences both faculty and students remain closely associated with Kansas healthcare facilities in Wichita and across Kansas. Medical Laboratory Sciences students complete applied learning experiences at medical centers in Wichita, Garden City, Dodge City, Salina and other centers helping to provide healthcare to Kansas residents. Laboratory directors of these facilities serve on the Advisory Board for the program and help align the program curriculum with current practices and policies. Over the past three years, the program has developed Connect, which requires medical laboratory sciences students to participate in interdisciplinary community events. Under guidelines, students design their own experiences with assistance from their peers. Connect has developed into a dynamic process led by medical laboratory sciences student leaders. Connect evolves each semester with new student leaders and changes with healthcare in our community.

d. Has the mission of the Program (s) changed since last review? Yes No

i. If yes, describe in 1-2 concise paragraphs. If no, is there a need to change?

While the mission of the program has not changed over the past three years, the curricular objectives used to meet the mission have changed. Program curriculum evolves to meet changing accreditation requirements and procedures of our affiliated healthcare facilities. The program remains dedicated to

educating resourceful, adaptable, and well-prepared graduates, contributing to the Medical Laboratory Sciences body of knowledge, and facilitating life-long learning in our field.

- e. Provide an overall description of your program (s) including a list of the measurable goals and objectives of the program (s) (programmatic). Have they changed since the last review?

Yes No

If yes, describe the changes in a concise manner.

The Bachelor of Sciences in Medical Laboratory Sciences prepares students to enter clinical laboratory positions for assessment of markers of health and disease. The professional program consists of 53 credit hours in lecture, student laboratory and applied learning experiences in clinical settings, which are attempted after successful completion of university general education and program prerequisites. Faculty offices and student laboratories are located on the first floor of Ahlberg Hall in the "Green Hallway," painted to match commencement hat tassel. Students participate in over 100 hours of student laboratory practice before applying this experience in urban and rural medical facilities across the state. Student laboratory equipment includes microscopes, and manual and automated body fluid testing equipment. Students practice on automated clinical equipment during applied learning experiences at medical facilities. Most graduates find employment in clinical laboratories in Wichita and smaller communities in Kansas. Other graduates use the bachelor degree to enter graduate programs in healthcare. Over 95% of graduates find relevant employment within 6 months of graduation or go on to graduate study. While the broad goals and objectives of the program remain the same, course objectives evolve to reflect changes in clinical laboratory practice in Kansas.

Faculty and staff of the Medical Laboratory Sciences department strive to prepare students as competent Medical Laboratory Science professionals as defined by the program's local and regional community of interest and by National Board credential matrices. Students are provided with a curriculum which addresses and meets the demands of the changing technology and practice in the profession. Students participate in community healthcare events to develop and practice leadership skills. The goal, objectives and outcome measures described below are developed through national accreditation guidelines and regional healthcare needs.

Goal: To prepare students as competent Medical Laboratory Scientists as defined by the program's local and regional community of interest and by National Board credentialing examination matrices.

Objective: Upon graduation, the student will demonstrate the ability to comprehend, apply and evaluate information relevant to the role of a medical laboratory scientist.

Outcome Measures: Outcome measures consist of the results of

- Comprehensive written examinations given at the completion of the program (minimum grade of 70%)
- National Board Credentialing examination by the American Society for Clinical Pathology (program pass rate equal to or greater than the national pass rate)
- Indication of satisfaction with program graduates by employers. Employers are surveyed at two year intervals.

Objective: Upon graduation, students will demonstrate technical proficiency in all skills required to practice in the profession.

Outcome Measure: Outcome measures consist of the results of

- Ratings at or above minimal performance levels on clinical rotation checklists completed by clinical instructors at the end of the rotation.
- Indication of satisfaction with program graduates by employers. Employers are surveyed at two year intervals.

Objective: Upon graduation, students will demonstrate the ability to effectively communicate and interact with patients, physicians and other health professionals, in a manner consistent with employer standards.

Outcome Measures: Outcome measures include the results of

- Summative affective evaluations completed by clinical rotation instructors. Evaluations are conducted at the end of each clinical rotation.
- Indication of satisfaction with program graduates by employers. Employers are surveyed at two year intervals.

2. Describe the quality of the program/certificate as assessed by the strengths, productivity, and qualifications of the faculty in terms of SCH, majors, graduates, and scholarly/creative activity.

Scholarly Productivity	Number Journal Articles		Number Presentations		Number Conference Proceedings		Performances			Number of Exhibits		Creative Work		No. Books	No. Book Chaps.	No. Grants Awarded or Submitted	\$ Grant Value
	Ref	Non-Ref	Ref	Non-Ref	Ref	Non-Ref	*	**	***	Juried	****	Juried	Non-Juried				
Year 2013	1		1		3										1	1	3000
Year 1 2014	1		2		4										1	1	2000
Year 2 2015	1		1		8												
Year 3 2016			4												1		

* Winning by competitive audition. **Professional attainment (e.g., commercial recording). ***Principal role in a performance. ****Commissioned or included in a collection.

- Provide a brief assessment of the quality of the faculty/staff using the data from the table above and tables 1-7 from the Office of Planning Analysis as well as any additional relevant data. Programs should comment on details in regard to productivity of the faculty (i.e., some departments may have a few faculty producing the majority of the scholarship), efforts to recruit/retain faculty, departmental succession plans, course evaluation data, etc.

Provide assessment here:

MLS program faculty members include both tenured faculty and clinical educators with greater than 50% teaching responsibility. All faculty members have earned graduate degrees in the field or in related fields. All faculty members have experience as clinical laboratory practitioners in the subject matter that they teach. As full time faculty, individuals are expected to teach at the maximum level, 12 credits per semester, as designated by WSU Policies and Procedures. Faculty are evaluated on the basis of student evaluation of teaching, scores of national examinations of material that they teach, and clinical instructor evaluation of student progress in the fields in which they teach. The department offers funds for continuing education for certification maintenance and for remediation based on the results of evaluation documents.

Program faculty members provide instruction for program prerequisite courses and a general education requirement, as well as program courses, as part of their teaching loads. These tasks allow faculty to interact with pre-medical laboratory sciences students before the admissions process. Program faculty

members also teach medical terminology for the university. Through this course, faculty members develop inter-professional perspectives with business, liberal arts, education and other programs beyond the "Green Hallway."

Because program faculty members teach HP-prefixed courses, as well as MLS-prefixed courses, FTE for program faculty is not accurately reflected in table 5C. The true faculty teaching load is listed in the table below and is well over teaching load for faculty in the college and the university.

Teaching Load*	Credit hours (fall semester)*		Total Credit hours (fall semester)*	# faculty	Total FTE	Table 5c Reported FTE
	Program credits	College credits taught by MLS faculty				
Year 2013	1220	763	1983	5	397	242
Year 1 2014	1024	1071	2095	5	439	251
Year 2 2015	959	1045	2004	4.9	409	198
Year 3 2016	*					

- Source: WSU Reporting Services
Fall 2016 not available at time of OPA Review

In addition to heavy teaching load, program faculty members pursue development and service. Over the three years studied, faculty member Laurie Alloway earned a specialty in clinical chemistry from American Society for Clinical Pathology (ASCP). To earn this certificate, the candidate must have experience as a clinical chemistry and pass the specialty examination through ASCP. Professor Alloway took initiative in this process, researching requirements, collecting documentation of experience, studying for the examination on her own time, and, finally, completing the examination. ASCP specialty certificates are the gold standard for quality in the MLS field. Program faculty member, Diana Cochran-Black, received a specialty certificate in molecular diagnostics from Michigan State University in 2014. Molecular diagnostics is a growing field in Medical Laboratory Sciences. The WSU program has been increasing instruction in this field over the last three years. Program faculty member, Reitha Deiter, was invited to participate in an international review of an MLS program in Saudi Arabia. Professor Deiter, along with health professionals from many countries, reviewed the program based on Saudi Arabian government criteria. Her expertise in immunohematology was helpful in providing positive direction for the program. Program faculty member, Jean Brickell, was awarded the Omega Sigma Award by the American Society for Clinical Laboratory Sciences (ASCLS). This award provides recognition of dedicated members who volunteer their time and energy to ASCLS.

3. Academic Program/Certificate: Analyze the quality of the program as assessed by its curriculum and impact on students for each program. The updated program assessment plan and the narrative reviewing the data are listed below.

- For undergraduate programs, compare ACT scores of the majors with the University as a whole. There are negligible differences between University ACT scores and the ACT score of the majors in the program.
- For graduate programs, compare graduate GPAs of the majors with University graduate GPAs.

Not applicable

- c. Identify the principal learning outcomes (i.e., what skills does your Program expect students to graduate with). Provide aggregate data on how students are meeting those outcomes in the table below. Data should relate to the goals and objectives of the program as listed in 1e. Provide an analysis and evaluation of the data by learner outcome with proposed actions based on the results.

Definitions:

Learning Outcomes: Learning outcomes are statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program (e.g., graduates will demonstrate advanced writing ability).

Assessment Tool: One or more tools to identify, collect, and prepare data to evaluate the achievement of learning outcomes (e.g., a writing project evaluated by a rubric).

Criterion/Target: Percentage of program students expected to achieve the desired outcome for demonstrating program effectiveness (e.g., 90% of the students will demonstrate satisfactory performance on a writing project).

Result: Actual achievement on each learning outcome measurement (e.g., 95%).

Analysis: Determines the extent to which learning outcomes are being achieved and leads to decisions and actions to improve the program. The analysis and evaluation should align with specific learning outcome and consider whether the measurement and/or criteria/target remain a valid indicator of the learning outcome as well as whether the learning outcomes need to be revised.

Learning Outcomes (most programs will have multiple outcomes)	Assessment Tool (e.g., portfolios, rubrics, exams)	Target/Criteria (desired program level achievement)	Results	Analysis
Knowledge level as defined by program faculty	Program-administered comprehensive exam given at the end of the program	Minimum grade of 70%	All students met target	Acceptable; Continue monitoring
Knowledge level as defined by National Credentialing Agency	National Board Credentialing examination by the American Society for Clinical Pathology	Program pass rate equal to or greater than the national pass rate	Program/National 2013: 92/84% 2014: 94/84% 2015: 81.78%	Acceptable; Continue monitoring
Indication of satisfaction with program graduates by employers.	Survey of employers of program graduates, surveyed at two year intervals.	100% satisfaction	2014 survey shows 100% satisfaction with WSU MLS graduates	Continue to respond to suggestions of employers to improve program
Skills evaluation as evaluated by clinical instructors at applied learning site	Applied learning checklists completed by clinical instructors at the end of the rotation.	Ratings at or above minimal performance levels	All students met target	Acceptable; Continue monitoring
Summative affective, or attitude, evaluations completed by clinical rotation instructors	Applied affective checklists completed by clinical instructors at the end of the rotation.	Ratings at or above minimal performance levels	3 ratings below minimum – problems addressed to satisfaction of evaluator	Continue to respond to suggestions and comments of evaluators to improve program

- d. Provide aggregate data on student majors satisfaction (e.g., exit surveys), capstone results, licensing or certification examination results (if applicable), employer surveys or other such data that indicate student satisfaction with the program and whether students are learning the curriculum (for learner outcomes, data should relate to the outcomes of the program as listed in 3c).

Learner Outcomes (e.g., capstone, licensing/certification exam pass-rates) by year, for the last three years*				
Year	N	Name of Exam	Program Result - pass rate %	National Comparison± pass rate %
0-2013	25	American Society for Clinical Pathology	92	84
1-2014	34	Same	94	84
2-2015	32	Same	81	78
3-2016	30	Same	93	80

Learner Outcomes related to student satisfaction, for the last three years, by completers of the program*					
Year	N	Name of Exam	Program Result - % satisfied or very satisfied	University Result - % satisfied or very satisfied	College Result - % satisfied or very satisfied
0-2013	33	University end-of-program exit survey	97	82.9	85.8
1-2014	30	Same	96.7	81.4	86.4
2-2015	36	Same	86.1	80.9	83.3
3-2016		Same	96	80.7	80.8

- Fall 2016 not available at time of OPA Review

Employer satisfaction with WSU MLS graduates is listed in part 3c.

- e. Provide aggregate data on how the goals of the *WSU General Education Program* and *KBOR 2020 Foundation Skills* are assessed in undergraduate programs (optional for graduate programs).

Medical Laboratory Sciences faculty offer several Health Professions (HP-prefix) courses. One of these courses, HP 430 Impact of Disease on Global Events, is approved as an Issues and Perspectives, General Education course. MLS 430 provides scenarios on disease events throughout history, such as the Influenza Pandemic of 1918-19, and requires students to discuss the issues of these events with other online members of the course and then articulate their own perspective, based on information in the scenarios and discussions with other students. For most activities, there is no right or wrong answer. The course is evaluated by end-of-semester student survey (SPTE). Satisfaction with the course has been above university and college averages for the three years under study.

Outcomes:	Results	
	Majors	Non-Majors
<ul style="list-style-type: none"> ○ Have acquired knowledge in the arts, humanities, and natural and social sciences ○ Think critically and independently ○ Write and speak effectively ○ Employ analytical reasoning and problem solving techniques 		
Level of preparation for program science courses is dependent upon prerequisite courses, such as general biology and general chemistry	Students admitted into program passed program science courses	The program monitors grades of pre-MLS students for admission into the program
Independent analysis of unknown specimen procedures and assessment	Unknown analysis assessed by faculty	Same
Written and verbal reports for other healthcare providers	Communication assessed by clinical instructor	Same

Note: Not all programs evaluate every goal/skill. Programs may choose to use assessment rubrics for this purpose. Sample forms available at: <http://www.aacu.org/value/rubrics/>

- f. For programs/departments with concurrent enrollment courses (per KBOR policy), provide the assessment of such courses over the last three years (disaggregated by each year) that assures grading standards (e.g., papers, portfolios, quizzes, labs, etc.) course management, instructional delivery, and content meet or exceed those in regular on-campus sections.
Provide information here: Program courses are not offered in any form other than on-campus sections. Program faculty members teach prerequisite courses online but these courses are not offered on-campus. All courses are taught in only one format.
- g. Indicate whether the program is accredited by a specialty accrediting body including the next review date and concerns from the last review.
Provide information here: The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences. The next self-study will be due in 2020 and the next site visit will be scheduled in 2021. The last review noted no concerns.
- h. Provide the process the department uses to assure assignment of credit hours (per WSU policy 2.18) to all courses has been reviewed over the last three years.
Provide information here: The program uses the "Definition and Assignment of Credit Hours" as stated in 2.18 of the WSU Policies and Procedures. Calculations for new or changed courses are first evaluated through the curriculum change form process by the college and university academic affairs committees, and then monitored by the program director through syllabus and schedule review.
- i. Provide a brief assessment of the overall quality of the academic program using the data from 3a – 3e and other information you may collect, including outstanding student work (e.g., outstanding scholarship, inductions into honor organizations, publications, special awards, academic scholarships, student recruitment and retention).

Provide assessment here:

By the standards and evaluation reports of the program accrediting body, the practitioner credentialing body, employers of program graduates, clinical instructors of affiliation sites, and graduates of the program, the program is meeting and exceeding its academic goals.

Over the three years under study, MLS students have been awarded for their community service and scholarship. During this period William Waddell was elected Kansas Student Representative for the Kansas Society for Clinical Laboratory Science. He actively advocated for laboratory students from 4-year and 2-year educational institutions across Kansas. He was selected to represent the society on Legislative Day in Washington, DC. Legislative Day is an organized day of visits to law-makers for the purpose of advocating for the clinical laboratory personnel and issues.

MLS student Noelle Steen won the prestigious Siemens Scholarship on the basis of her academic excellences and evidence of leadership. The Siemens Scholarship is given in collaboration with the American Society for Clinical Pathology to recognize future providers of health care.

The Compliance Research Group (CRG) in Oklahoma City awarded MLS student Gordon Rogers a scholarship on the basis of his vision for future healthcare in his field. CRG has pledged \$1000 per year scholarship for a five-year period.

During the period under study, MLS students participated in medical mission trips to Pierre Payen, Haiti, as part of their program. These trips not only provide opportunity to practice discipline skills but also demonstrate the importance of inter-professional team care. Students gain valuable perspective on the roles of all members of a healthcare team. This experience cannot be duplicated in a classroom.

4. Analyze the student need and employer demand for the program/certificate. Complete for each program if appropriate.

- a. Evaluate tables 11-15 from the Office of Planning Analysis for number of applicants, admits, and enrollments and percent URM students by student level and degrees conferred.

The program accepts on average 80% of those applying through the online application process for the professional program. Medical Laboratory Sciences is a “capped program,” that is, the program may only accept the number of students that may safely practice in student laboratories and may be accepted into medical facilities for applied learning. The program continues to attract and matriculate well-qualified students to fill its classes and to graduate medical laboratory scientists who are sought-after by clinical laboratories in Kansas and elsewhere.

Faculty members in the program are encouraged by the rise in number of under-represented minority applicants. The program participates in summer programs, such as STEM, which brings a diverse student population to WSU. The program faculty members present hands-on activities in the student laboratory to STEM students and discuss the scope of practice of medical laboratory personnel. Time is allotted during these activities to meet individually with STEM students if they choose. The STEM program has provided a fresh opportunity to increase awareness of the program to a varied group.

Program faculty members participate in other recruitment activities, such as Junior Day and Senior Day. On the advice of college advisors, the program holds two recruitment open houses each year to meet with interested students, parents and friends of interested applicants. These activities have increased the number of knowledgeable applicants.

- b. Utilize the table below to provide data that demonstrates student need and demand for the program.

Employment of Majors*							
	Average Salary*	Employment % In state	Employment % in the field	Employment: % related to the field	Employment: % outside the field	No. pursuing graduate or professional education	Projected growth from BLS** Current year only. ↓
May 2016	62,440	88%	96%	1%	1%	2%	16%

* <https://www.bls.gov/oes/current/oes292011.htm>

** Go to the U.S. Bureau of Labor Statistics Website: <http://www.bls.gov/oco/> and view job outlook data and salary information (if the Program has information available from professional associations or alumni surveys, enter that data)

- Provide a brief assessment of student need and demand using the data from tables 11-15 from the Office of Planning and Analysis and from the table above. Include the most common types of positions, in terms of employment graduates can expect to find.

Provide assessment here:

Most graduates (96%) find employment in hospitals, clinics and other medical assessment facilities. Most of these individuals (88%) are employed in Kansas. Other graduates work in fields related to laboratory practice, such as sales representatives for laboratory equipment and education of laboratory personnel.

5. Analyze the service the Program/certificate provides to the discipline, other programs at the University, and beyond. Complete for each program if appropriate.

Evaluate table 16 from the Office of Planning Analysis for SCH by student department affiliation on fall census day.

- Provide a brief assessment of the service the Program provides. Comment on percentage of SCH taken by majors and non-majors, nature of Program in terms of the service it provides to other University programs, faculty service to the institution, and beyond.

Provide assessment here:

As a capped program, medical laboratory sciences offers professional courses to MLS majors only. However, the program also offers online courses, both prerequisites to the program and general education courses. MLS 311 biochemistry, a program prerequisite, is offered online for state residents who plan to transfer into the campus professional program. MLS 405, immunology, also a program prerequisite, is offered online for similar reasons. The program seeks applicants from all parts of the state to provide medical laboratory personnel to healthcare facilities in all parts of the state.

MLS offers a General Education Issues and Perspectives course, HP430 Effect of Disease on Global Events, as a service to the university. Students from many program in the College of Health Professions, and from other colleges, such as Liberal Arts and Sciences, Business, Education Fine Arts and Engineering, participate in the course.

Program faculty rotate participation in the college courses, HP 203 and 303, Medical Terminology, 2 credit hours and 3 credit hours, respectively. Students from College of Health Sciences programs, and from programs across the campus participate in medical terminology courses. Percentages of major and non-major participation in fall semesters are reported below.

Student Participation in Non-Major Course/*	MLS 430 Impact of Disease on Global Effects (Issues and Perspectives)		MLS 311 & 405 Program Prerequisite Courses		HP 203 & 303 Medical Terminology	
	% Majors	% Non-Majors	% Majors	% Non-Majors	% Majors	% Non-Majors
Year 2013	10	90	61	39	3	97
Year 1 2014	10	90	31	69	3	97
Year 2 2015	7	93	58	42	3	97
Year 3 2016	7	93	71	29	2	98

- Source: Reporting Services Fall Semesters

All faculty members of the medical laboratory sciences program service on department admissions, scholarship, and curriculum committees. In addition, MLS faculty members serve on all college committees, under the guidelines of the college bylaws. Because there are more college committees than faculty in the program, some MLS faculty members serve on more than one college committee. Faculty members serve on the boards of professional organizations and consult with local clinical laboratories as needed.

6. Report on the Program's/certificate's goal (s) from the last review. List the goal (s), data that may have been collected to support the goal, and the outcome. Complete for each program if appropriate.

(For Last 3 FYs)	Goal (s)	Assessment Data Analyzed	Outcome
	Develop additional laboratory simulations to reduce the cost of laboratory equipment and reagents.	Laboratory (skills-based) exercises	Four new simulation exercises have been developed in microbiology. Two simulation exercises have been piloted in molecular diagnostics.
	As the department reduces focus on faculty development, develop a research/scholarly activity focus that is appropriate to the structure of the department.	Scholarly activity	A research agenda has not been identified

7. Summary and Recommendations

- a. Set forth a summary of the report including an overview evaluating the strengths and concerns. List recommendations for improvement of the program that have resulted from this report (relate recommendations back to information provided in any of the categories and to the goals and objectives of the program as listed in 1e). Identify three goals for the program to be accomplished in time for the next review.

Provide assessment here:

Strengths:

1. The program continues to have strong community support. Clinical laboratories open their facilities to students for applied learning experiences. Clinical laboratory personnel serve on the program advisory board, providing suggestions for improvement.
2. Employers state that graduates of the program are well prepared for employment in terms of skills, knowledge and attitude. The program enjoys a positive reputation.
3. Faculty have considerable clinical experience in their field.
4. The Medical Laboratory Sciences curriculum demands high expectation of knowledge base, skills practice and apply learning.

Concerns:

1. After reviewing both the information provided above for scholarly activity and information provided in subsequent sections of this report for teaching activity, we realize that changes need to be made in teaching assignments. At present, tenured faculty members are given the same or increased teaching load compared to clinical educators.
2. Reduction of state support is expected. Medical laboratory sciences students must practice skills before entering the applied learning phase of the program.
3. Program equipment is aging.

Plan/Goals:

1. Adjust teaching load, focusing on the use of tenured faculty time in student laboratory experiences, in order to provide tenured faculty time for scholarly activity
2. Develop laboratory simulations of the applied learning experience to reduce costs in the program.
3. Explore options for re-serviced equipment to lower the cost of purchasing new equipment.