



Cycle: 2018-2021

ASSOCIATE DEGREE IN APPLIED SCIENCE WITH A MAJOR IN MEDICAL LABORATORY TECHNOLOGY

Program Mission Statement:

The mission of the Medical Laboratory Technology program is to provide a comprehensive technical education program that prepared quality graduates to work in the medical, clinical, and research laboratory industry.

Division: Health and Human Services

AVP: Dr. Dan Averette

Department Chair: Dawn Nelson

Director: Dawn Nelson

SACSCOC Standard: 8.2A

Accrediting Agency: Yes No

Name: National Accrediting Agency of Clinical Laboratory Science (NAACLS)

Certification Exam(s): Yes No

Agency Name: America Society of Clinical Pathology

Credential: MLT (ASCP)

Program Student Learning Outcome	Monitoring Year
Critical Thinking: Integrate scientific reasoning and interpretation within clinical laboratory sciences body of knowledge.	2018-2019
Communication: Communicate information and ideas effectively.	2019-2020
Quality: Perform laboratory procedures from simple to complex, including specimen collection, processing, analysis, and interpretation.	2019-2020
Applied Learning: Develop competency in the theoretical knowledge necessary to prepare for the national certification examination.	2020-2021

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2018-2019

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
<p>Critical Thinking: Integrate scientific reasoning and interpretation within clinical laboratory sciences body of knowledge.</p>	<p>MLT 102 Fundamentals of MLT</p> <p>MLT 104 Basic Microbiology</p>	<p>Artifacts used for this PSLO are a combination of didactic and psychomotor testing events that encompasses two MLT curriculum classes. MLT 102 students are introduced to the use of a compound microscope. MLT 104 provides several opportunities for practice and mastery of the compound microscope. Student averages were used for the following assessments. Microscope Practical I, Gram stain Practical I.</p>	<p>85% of the students will receive 77% or higher</p>	<p>Fall 2018</p>	<p>11 out of 12 students (91.2%) received a 77% or higher on the artifacts chosen for this assessment.</p> <p>The lowest score for this artifact was 64% and the highest was 100%.</p> <p>The Microscope practical was the first assessment and the cohort average was 92.4%. The gram stain practical cohort average was 88.6%.</p>	<p>The expected level of learning was met.</p> <p>However, MLT faculty were not satisfied with this particular assessment. Gram staining microscopy is a foundational skill for the MLT. Students are beginning to master this technique, but they are not really understanding the why.</p> <p>The next time the course is taught we will implement a written homework component where the student have to describe steps, timing and reagents and what is actually happening during the staining procedure.</p> <p>The next gram stain practical will contain a short discussion question where they will have to summarize the staining process.</p>

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2018-2019

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What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
<p>Critical Thinking: Integrate scientific reasoning and interpretation within clinical laboratory sciences body of knowledge</p>	MLT 131 Clinical Chemistry	<p>Artifacts used for this PSLO are the module exam III and three online quizzes for clinical enzymology. Enzymes encompass the largest area of diagnostic testing in laboratory medicine.</p>	85% of the students will receive 77% or higher	Fall 2018	<p>11 out of 12 students (91.2%) received a 77% or higher on the artifacts chosen for this assessment.</p> <p>The lowest score for this artifact was 72% and the highest was 103%.</p> <p>The three online quizzes are low stakes assessments the cohort average was 81.8%.</p>	The expected level of learning was met. Will continue to use performance metrics to evaluate results.

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2019-2020

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
<p>Critical Thinking: Integrate scientific reasoning and interpretation within clinical laboratory sciences body of knowledge.</p>	MLT 102 Fundamentals of MLT	Artifact used for this PSLO was the module II exam where students were assessed on the production, structure, and function of all common blood cells including, but not limited to normal and abnormal appearance and laboratory values.	85% of the students will receive 77% or higher.	Fall 2019	<p>11 out of 15 students received (73.3%) received a 77% or higher for the artifact chosen for this assessment.</p> <p>The lowest for artifact was 65%, the highest was 100%.</p> <p>The cohort average was 83.9%</p>	The expected level of learning was not met. Will continue to use performance metrics to evaluate results.

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2019-2020

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What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Communication: Communicate information and ideas effectively.	MLT 115 Immunology	Artifact used for this PSLO was a paper on a virus of the student's choice. The assignment required components: cause of illness, signs and symptoms, testing, prognosis and treatment.	85% of the students will receive 77% or higher.	Fall 2019	15 out of 15 students received a grade of 77% or higher for this artifact chosen for this assignment. All students met the requirements and scored 100%	The expected level of learning was met. This is a low stakes assignment that students generally do well on if they follow instructions. MLT cohort as a group, are generally introverts and we have to provide assignments that force them out of their comfort zone. Will continue to use performance metrics to evaluate results.

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2019-2020

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<p>Quality: Perform laboratory procedures from simple to complex, including specimen collection, processing, analysis, and interpretation.</p>	MLT 120 Immunohematology	Artifact used for the PSLO is a practical grade on antibody identification. Students are given three panels they must solve and answer 4 questions for each one.	85% of the students will receive 77% or higher.	Spring 2019	<p>8 out of 12 students (66.6%) received 77% or higher for this artifact chosen for this assignment.</p> <p>The lowest for artifact was 26%, the highest was 94%.</p> <p>The cohort average was 74.58%</p>	<p>The expected level of learning was not met.</p> <p>Spring 2020 grades were inflated due to transition to online for pandemic. In spring 2021 faculty decided to incorporate ABO,RH and antibody Identification on the practical to help give students more opportunity for success. Ironically the results were similar 8 out of 12 students (66.6%) received 77% or higher. The improvement came in the low/high and cohort averages. The lowest for this artifact was 43% with the highest 97%. The cohort average was 77% . Antibody identification is the single most difficult concept in laboratory medicine.</p>

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2020-2021

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<p>Applied Learning: Develop competency in the theoretical knowledge necessary to prepare for the national certification examination.</p> <p>Quality: Perform laboratory procedures from simple to complex, including specimen collection, processing, analysis, and interpretation.</p>	<p>MLT Clinical Courses: MLT 251, MLT 252, MLT 253, and MLT 254.</p> <p>MLT 230 Clinical Chemistry</p>	<p>Artifact used for this PSLO is a registry test preparation web based program. Students are required to generate discipline specific practice tests for each rotation.</p> <p>Artifact used for this PSLO is three practical exams for MLT 230. Practical exams focus on psychomotor skills needed in the clinical lab.</p>	<p>85% of the students will receive 77% or higher.</p> <p>85% of the students will receive 77% or higher.</p>	<p>Fall 2020 and Spring 2021.</p> <p>Summer 2020</p>	<p>11 out of 11 students (93.6%) students received 77% or higher for this artifact chosen for this assignment.</p> <p>Lowest score was 90% and highest score 100%.</p> <p>Practical 1- 8 out of 11 (72.7%) students received 77% or higher. Practical 2- 10 out of 11 (90.9%) students received 77% or higher. Practical 3- 11 out of 11 (100%) students received 77% or higher</p>	<p>The expected level of learning was met. Will continue to use performance metrics to evaluate results.</p> <p>The expected level of learning was met. This benchmark was a spiral evaluation where practical 1 prepared foundational lab skills and the students improved as the evaluation spiraled through all three assessments. The cohort averages improved within the sequential spiral. Practical 1 80%, Practical 2, 92% and Practical 3 93.9%. Will continue to use performance metrics to evaluate results.</p>

STUDENT LEARNING OUTCOMES FOR AAS.MLT – 2020-2021

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
<p>Quality: Perform laboratory procedures from simple to complex, including specimen collection, processing, analysis, and interpretation.</p>	MLT 108- Urinalysis and Body Fluids	Artifact used for this PSLO is the chapter five chemical composition exam. A comparison was made between summer of 2020 and summer of 2021.	85% of the students will receive 77% or higher.	Summer 2020 and Summer 2021	<p>SU-2020- 6 out of 11 students (54.5%) received 77% or higher for the artifact chosen for this assignment.</p> <p>Lowest score was 52.28% and highest 90.48%</p> <p>SU-2021 7 out of 7 students (100%) received 77% or higher for this artifact for this assignment. Lowest score was 87% and highest 94.8%.</p>	<p>The expected level of learning was not met for summer 2020, but was met for summer of 2021.</p> <p>The chapter 5 exam was comparable in format, rigor and number of questions. However, the comparison does not fairly align due to the pandemic. Summer 2020 students had course work from the spring term to complete along with two new MLT courses. These students had five classes to manage in a 10-week term. The summer of 2021 students only had expected work load to complete (two classes). The outcome was considerably better for summer 2021 students. During the capstone review classes in fall of 2020, faculty identified gaps in knowledge for our summer 2020 students. Identified gaps were supplemented with review materials and certification review questions.</p>

CONTINUOUS STUDENT IMPROVEMENT

This Cycle's Results and Comparison to Last Cycle's and Recommended Actions:

During the 2016-2018 assessment cycle the MLT program key focus was to improve the ASCP certification pass rate. Since 2015 we have seen pass rates improve. Our lowest score occurred in 2015 with 60% pass rate. Since then, we have maintained an 81.73% pass rate over the last seven years. Gaps in the curriculum were identified during our last assessment cycle, particularly in chemistry and Immunohematology. MLT faculty did a comprehensive curriculum review in 2017. We mapped the curriculum to the ASCP test outline and identified problem areas in our curriculum. We added additional classes in clinical chemistry, and immunology and in 2019 added a parasitology class. We went from 8 credits in anatomy and physiology to 4 credit hours. We also made math and A&P a prerequisite for the program. This change allowed us to go from two MLT classes in the first semester to four MLT prefix classes. We were seeing a gradual increase over the last three years with 87.5% in 2019. Then the pandemic impacted student success. We had 9/12 students pass ASCP certification, giving us a 75% pass rate for 2020. The class of 2021 was also greatly impacted by the pandemic. We are currently at a 100% pass rate, but have 5 students left to take the exam. We are concerned about these students. They keep pushing their test dates back. This is a variable we cannot control.

During the 2021-2022 academic year MLT faculty will complete a comprehensive curriculum review. ASCP has expanded the test blueprint and we plan to map this to our curriculum. The ASCP exam has seven categories to test student knowledge. Faculty are tracking categorical results and we have seen a decrease in laboratory operations which includes laboratory mathematics. Over the last two years we have added mathematic reviews to the capstone class. The Assessment has been online. Summer 2021 reinstated our comprehensive math review to MLT 230. We are going old school with a comprehensive paper and pencil exam. We will continue comprehensive math review for all disciplines during the four clinical courses during the 2nd year. Students will be required to score 80% or higher. If they fail, they will be given a 2nd attempt with remediation.

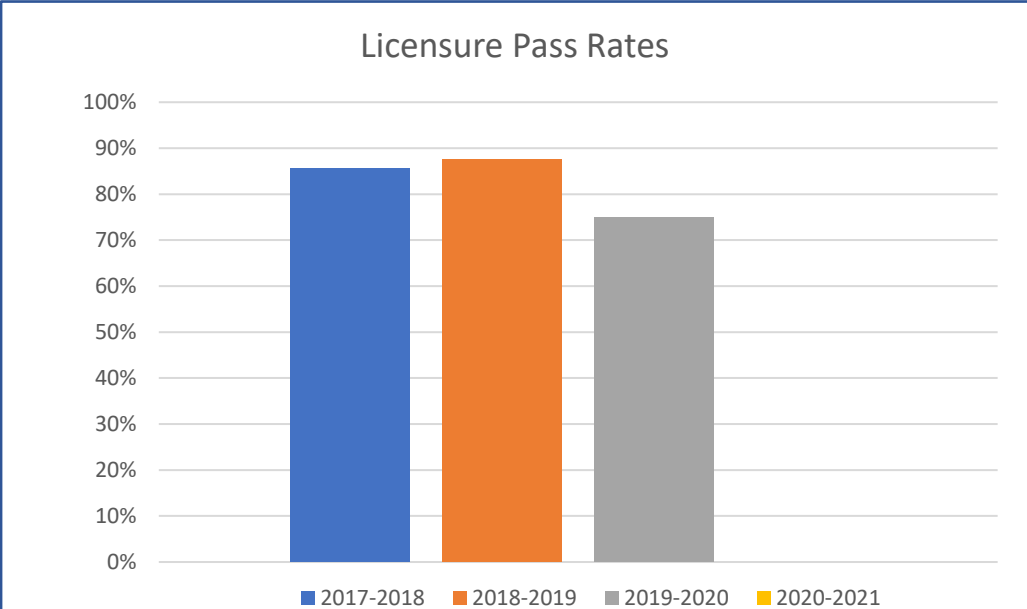
A secondary goal is to improve enrollment. We have increased our incoming freshman over the last couple years at 12 students. We do seem to have an enrollment boost for fall of 2021, we have 17 students enrolled.

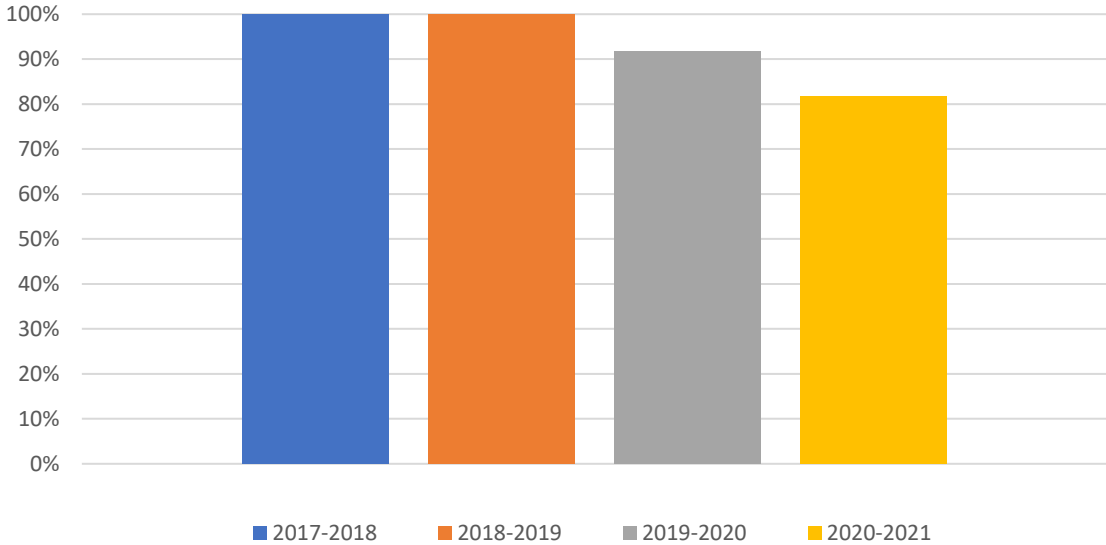
PROGRAM VITAL STATISTICS

Indicator	Trend Analysis	Action Plans										
<p>Program Enrollment</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Program Enrollment Data</caption> <thead> <tr> <th>Academic Year</th> <th>Enrollment</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>19</td> </tr> <tr> <td>2018-2019</td> <td>20</td> </tr> <tr> <td>2019-2020</td> <td>27</td> </tr> <tr> <td>2020-2021</td> <td>23</td> </tr> </tbody> </table>	Academic Year	Enrollment	2017-2018	19	2018-2019	20	2019-2020	27	2020-2021	23	<p>MLT is a low enrollment program. We do not have an accreditation cap, but we do have a limit of quality clinical sites for our students. We have seen a steady increase over the last couple years. 2021-2022 seem to have an enrollment boost. We have 17 incoming freshmen.</p> <p>Note: These numbers include freshman and senior cohorts.</p>	<p>Allied Health faculty have worked to stream line program prerequisites so students may have options for enrollment in other programs.</p>
Academic Year	Enrollment											
2017-2018	19											
2018-2019	20											
2019-2020	27											
2020-2021	23											

Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Fall to Spring Persistence</p> <table border="1"> <caption>Fall to Spring Persistence Data</caption> <thead> <tr> <th>Year</th> <th>Persistence Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>88%</td> </tr> <tr> <td>2018-2019</td> <td>100%</td> </tr> <tr> <td>2019-2020</td> <td>73%</td> </tr> <tr> <td>2020-2021</td> <td>83%</td> </tr> </tbody> </table>	Year	Persistence Rate	2017-2018	88%	2018-2019	100%	2019-2020	73%	2020-2021	83%	<p>MLT faculty worked hard to improve rigor in first semester. We feel its kinder to identify students early in a program for academic weaknesses.</p> <p>We want all students to be successful. We are not targeting anyone. Those who are not successful fall in two categories: They are students who do not complete the low stakes quizzes or have multiple incomplete assignments. The others do not have the academic abilities to be successful.</p>	<p>MLT faculty will continue to monitor student progress.</p>
Year	Persistence Rate											
2017-2018	88%											
2018-2019	100%											
2019-2020	73%											
2020-2021	83%											
<p style="text-align: center;">Fall to Fall Retention</p> <table border="1"> <caption>Fall to Fall Retention Data</caption> <thead> <tr> <th>Year</th> <th>Retention Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>53%</td> </tr> <tr> <td>2018-2019</td> <td>100%</td> </tr> <tr> <td>2019-2020</td> <td>80%</td> </tr> <tr> <td>2020-2021</td> <td>91%</td> </tr> </tbody> </table>	Year	Retention Rate	2017-2018	53%	2018-2019	100%	2019-2020	80%	2020-2021	91%	<p>MLT program worked hard to increase rigor in first and 2nd semester. We were seeing gradual success. The pandemic did have an impact.</p> <p>The pandemic did impact the retention of several freshman MLT students. Three freshmen withdrew in late July of 2020 because they could not keep up with work load of two semesters of content in one semester.</p>	<p>MLT faculty will continue monitor student progress from 2nd semester to 3rd semester.</p>
Year	Retention Rate											
2017-2018	53%											
2018-2019	100%											
2019-2020	80%											
2020-2021	91%											

Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Graduation Rates</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Graduation Rates Data</caption> <thead> <tr> <th>Year</th> <th>Graduation Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>54%</td> </tr> <tr> <td>2018-2019</td> <td>89%</td> </tr> <tr> <td>2019-2020</td> <td>100%</td> </tr> <tr> <td>2020-2021</td> <td>73%</td> </tr> </tbody> </table>	Year	Graduation Rate	2017-2018	54%	2018-2019	89%	2019-2020	100%	2020-2021	73%	<p>Graduation rates have been consistent over the last couple of years. The 2019-2020 seniors were not typical. They started in fall of 2018 with 12 students and graduated with 12 students in 2020. This cohort was also composed of 6 students with bachelor degrees. This is not typical.</p> <p>2020-2021 cohort was impacted by the pandemic.</p>	<p>MLT faculty will continue monitor student progress</p>
Year	Graduation Rate											
2017-2018	54%											
2018-2019	89%											
2019-2020	100%											
2020-2021	73%											

Indicator	Trend Analysis	Action Plans
<p style="text-align: center;">Licensure Pass Rates</p>  <p>*First time pass rates</p>	<p>Licensure pass rate were trending up starting in 2016.</p> <p>The 2016-2018 cohort had a 83.3% pass rate.</p> <p>The 2017-2019 cohort had a 87.5% pass rate.</p> <p>The 2018-2020 cohort had a 75% pass rate. The pandemic did impact the success of this cohort. The were placed on lockdown during the heart of the MLT program (2nd semester).</p> <p>2021 statistics are incomplete 5/11 have take exam. We are currently at 100% pass rate.</p>	<p>MLT faculty will continue monitor student progress.</p>

Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Job Placement Rates</p>  <table border="1" data-bbox="136 251 1234 792"> <caption>Job Placement Rates Data</caption> <thead> <tr> <th>Year</th> <th>Rate (%)</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>100%</td> </tr> <tr> <td>2018-2019</td> <td>100%</td> </tr> <tr> <td>2019-2020</td> <td>92%</td> </tr> <tr> <td>2020-2021</td> <td>82%</td> </tr> </tbody> </table>	Year	Rate (%)	2017-2018	100%	2018-2019	100%	2019-2020	92%	2020-2021	82%	<p>MLT graduates usually have no problems finding employment. Most of the time our students are hired before they even graduate.</p> <p>2019-2020- 11/12 graduates found jobs.</p> <p>2020-2021 9/11 graduates found jobs. One has moved to Colorado, and they do not hire MLT's she plans to get her bachelors degree and take MLS exam. The students spouse is in Airforce and they are being stationed in Japan.</p>	<p>MLT faculty will continue monitor.</p>
Year	Rate (%)											
2017-2018	100%											
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