

Section 1 – Program Mission & Educational Objectives

The mission of the Medical Laboratory Science Degree, a Bachelor of Science program, is to educate, train, and graduate professionally competent and ethical individuals, committed to life-long learning, and who are prepared to meet current and future workplace challenges in medical laboratory science.

Program Alignment to Oregon Tech Mission and Core Themes

The goals of the Oregon Tech • OHSU MLS program are to:

1. Advance an innovative curriculum that meets current and emergent pedagogical and professional development needs of students.
2. Provide learning experiences rich in opportunities that maximize every student's potential to achieve MLS career entry-level competencies.
3. Graduate competent MLS that meet the workforce needs of Oregon and underserved regions of the nation.
4. Identify, establish, and maintain partnerships with community medical laboratories that provide exceptional educational experiences.
5. Contribute to the advancement of MLS pedagogy and growth of the profession.

Program Educational Objectives

Upon completion of the Oregon Tech • OHSU MLS program, a student will have had the opportunity to acquire the knowledge and skills required to demonstrate professional attributes of a Medical Laboratory Scientist. Successful completion of the program will allow students to pursue career opportunities in various laboratory settings including but not limited to medical, research and development, sales, management and public health.

At the time of graduation, graduates will have the knowledge needed to:

1. Competently perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including immunology, hematology, clinical chemistry, immunohematology, microbiology, molecular, hemostasis, urinalysis, body fluids, parasitology, mycology, virology and other emerging diagnostic venues.
2. Proficiently problem-solve, troubleshoot, and interpret results, and to use statistical approaches when evaluating data.
3. Participate actively in the development, implementation, and evaluation of test methods
4. Take Responsibility for analysis and decision-making.
5. Apply safety and governmental regulations and standards to medical laboratory practice.
6. Act with Professional and ethical conduct, respecting the feelings and needs of others, protecting the confidence of patient information, and never allowing personal concerns and biases to interfere with the welfare of patients.
7. Participate in Interpersonal and interdisciplinary communication interactions with members of healthcare teams, external relations, customer service and patients.
8. Apply knowledge of medical laboratory finance, operations, marketing, human resource management and educational methods.
9. Utilize information technology to effectively and accurately report laboratory-generated information.
10. Apply research design and practice principles to test development and validation.

Section 2 – Program Description and History

History

Established in 1933 by the Oregon Health and Science University (OHSU) in Portland, Oregon, the nationally accredited Medical Laboratory Science program is a university-based, 3+1 program of study culminating in a BS in Medical Laboratory Science. In 2001, administrative responsibilities for the program transferred to Oregon Tech through a master collaboration agreement between the two universities. Student diplomas identify both Oregon Tech and OHSU as the degree-granting institutions. In brief, Oregon's only baccalaureate MLS program retains the brand identity of OHSU with the administrative support of Oregon Tech.

Today, the program is administered through the Department of MLS which resides on the Oregon Tech Portland Metro campus located in Wilsonville Oregon. Here, students admitted to the last year of the degree program referred to as the "professional year" take coursework that combines a rigorous competency-based science curriculum combined with community-sponsored clinical training. During the first four terms of the professional year, students complete course work as a cohort in state-of-the-art-classrooms that include two well-equipped laboratory classrooms, a smart high-tech lecture hall and an instrumentation room. Upon successful completion of the on-campus coursework, students are assigned to one or more program-affiliated laboratories to complete clinical training in the areas of chemistry, hematology, microbiology, blood bank and management. During the 16-week clinical training period, students spend 40 hours per week applying knowledge and skills to perform a wide variety of testing in an accredited medical laboratory and to further develop discipline-specific competency under supervision of clinical instructors working in the field. Currently, the Department of MLS maintains affiliations with accredited laboratories in Oregon, Washington, Nevada, Idaho, Colorado, Hawaii, Arizona and Alaska.

Program graduates are eligible to take the *American Society for Clinical Pathology (ASCP) Medical Laboratory Scientist (MLS)* national board certification examination or the *American Medical Technologists (AMT)* certification exams. The MLS program has held an above national certification passage rate and an almost 100% graduation rate over the last 10 years. Yearly attrition has not been more than 1 or 2 students over the last ten years as well. Most OHSU/OIT graduates choose to become certified by ASCP BOC exam due to the large recognition it receives in the job market.

The Medical Laboratory Science professional program is accredited by the *National Accrediting Agency for Clinical Laboratory Science (NAACLS)*, 5600 North River Road, Suite 720, Rosemont, Illinois 60018-5119. NAACLS requires program assessment data to include certification results, graduation rates, employment rates, and attrition rates from the previous three years.

Enrollment

The campus program can accommodate laboratory experiences for a maximum cohort of 50 students. The admitted class size is limited by three factors: 1) externship site availability, 2) qualified applicant pool and 3) Job Market demand.

Though Oregon Tech maintains affiliations with more than 50 clinical laboratories, the actual availability of externships varies by year and department. Some sites do not take students every year due to staffing levels or budget constraints. Many clinical laboratories are consolidating testing to regional laboratories and thus do not provide opportunities for all learning required of our students while out on externship. Steps have been taken to further evaluate the job market in the region through surveys sent to externship affiliates. Data will be evaluated in 2020.

As demonstrated in the below table, the applicant pool has decreased over the last several years. In order to maintain a competitive learning environment, it is important to maintain strict standards for acceptable candidates into the program. Work being done to increase applications include communication with Oregon Tech marketing department, MLS program presence at community career fairs and science centered community events, program faculty participation in Pre-MLS programs at Oregon Tech, Clackamas Community College and Warner Pacific College. This past year, an effort was made to collaborate with the MLT and CLA programs in the state of Oregon in order to support the laboratory education of all learners. Plans are in place to collaborate with these other programs on advocacy of the profession.

Academic Year	# of Applications	New cohort fall term	Externship students registered for fall term – scheduled to graduate in December	# Graduated in December
2014-15	102	45 students	49 students	48
2015-16	93	50 students	45 students	45
2016-17	82	46 students	47 students	47
2017-18	77	44 students	46 students	46
2018-19	78	44 students	42 students	TBA

Yearly Attrition

Our program consists of 5 consecutive quarter-terms. Students start in the fall and complete the program at the end of the following fall term. Accordingly, the department determined the final half of the program to be when students begin the spring or third term of the five terms of the program.

Very few students admitted to the program do not successfully complete it. Some students have decelerated the program for personal reasons and then gone on to graduate with a later cohort. For graduating class of 2018, all students completed the program. One student successfully repeated externship during winter of 2019 and graduated end of winter term 2019.

For class of 2019, one student decided that the career path was not right for her and the second student chose to decelerate and return in fall due to personal reasons. 42 students are currently on externship slated to graduate at end of fall term 2019.

Graduates

Our program retention and overall graduation rate for the MLS classes of 2012 – 2018 is 98.3%.

Academic Year Class of	Students in new cohort	Students Graduating	Graduation Rate
2011-12	27	27	100%
2012-13	35	35	100%
2013-14	50	48 (1 withdrew/1 died)	96%
2014-15	50	50	100%
2015-16	50	47 (1 withdrew) 1 withdrew for USAF will graduate 2017	94% (98% if you include the 2 that will graduate in 2017)
2016-17	46	47 (1 dismissed + 2 from previous cohort)	98%
2017-18	46	46	100%
2018-19	44	42 (1 withdrew + 1 decelerated)	tba

Employment

2018 Graduates of the program who passed the certifying exam went on to be employed on average 89% by laboratories affiliated with the university program. Further, 80% of these students are employed in Oregon. Most students report employment within three months of graduation. More than 50% take employment from their externship site.

The data in the following table has been developed as a combination of Graduate Exit Survey and the MLS program contact with graduates.

Academic year Class of	Student reported placement rate within 1 year of graduation	Average student reported salary	Median Student reported salary
2013-2014	97.8%	\$52,083	\$55,000
2014-2015	100%	\$56,950	\$55,000
2015-2016	100%	\$56,688	\$56,000
2016-2017	100% (2 non-reported)	\$57,400	\$56,000
2017-2018	95.7%	\$58,619	\$57,111

Board Exam Results

ASCP Board of Certification Exam Scores for **Graduating class of 2018** exceed national averages. See assessment data for trends.

	Mean Scaled Scores (First Time)	Total Pass Rate	First Time Pass Rate
OIT/OHSU MLS Program – Class of 2018	529	95.7%	91.3%
University based programs	504	78%	84%
National-All programs	504	76.3%	82.6%

Industry Relationships

Program faculty are planning a joint Advisory Board Meeting with PCC MLT program and CCC CLA program in October 2019. The rationale being that members of industry clinical affiliates and the affiliated college may receive a more thorough feedback on job market and outlook if the programs coordinate resources. More industry members may be willing to attend if the event includes all programs affecting their job pools.

The program maintains contact with several vendors in the field of Medical Laboratory Science. Some contacts are alumni of the program, some are industry partners donating reagents or equipment to foster learning. Much support of the program has been provided through career panel, interview prep, and externship affiliation.

Staff and students are encouraged to actively become involved in the industry's professional organizations through continuing education events and meetings. Students have been invited to participate in the following industry provided events:

- Northwest Medical Laboratory Symposium
- American Society of Clinical Laboratory Science (ASCLS) state and national conferences.
- Student Representative for the state chapter of ASCLS

The ASCLS Student Club received a grant from Resource Budget Commission to fund travel expenses for the class of 2019 to travel to Newport and participate in Oregon Spring Seminar, a continuing education event put on by American

Society of Clinical Laboratory Science (ASCLS) Professional Organization. All but one student attended the professional seminar and received credit for attending 2 different lectures. Two instructors and one student served as speakers at the event. Three students received scholarships at the event and one student was appointed ASCLS-OR student representative.

The 2018-2019 academic year was the first time the students of the program became involved in an interdisciplinary program at OHSU (IPE) that aims to increase communication between diverse medical professionals through group discussions of potential professional challenges under the headings of patient safety and ethics. Faculty had completed training for IPE during the 2017-2018 academic year and found the experience to be worthwhile to introduce to their students. In preparation, the New Student Orientation for the 2018-2019 cohort included extensive information about the profession and code of ethics as well as communication skills. Students actively participated during the school year in ethics and community based activities with other medical professionals. Students comported themselves professionally in representing the program and college. It was felt by students and faculty that this experience exemplified the educational outcome #7 "Participate in Interpersonal and interdisciplinary communication interactions with members of healthcare teams, external relations, customer service and patients." It was a worthwhile use of student academic time both professionally for them as individuals and for the profession of laboratory science.

Student Perspectives from Graduating Class of 2018

"It is hard to pick just one course or experience that was the most valuable. The class work helped us to know the theory behind the testing and the externship helped to solidify the techniques we learned in class."

"I couldn't pinpoint a single course that was most valuable. They all intertwined. I would say the whole program is very effective."

"I really valued my hematology courses. There is an art to knowing how to evaluate clinical significance from a blood smear. Its also so practical. I'm not sure how an online class could teach this subject."

"Ryan not only taught the content well, he taught us how to have passion for what we do, and his class always made me excited to learn more. I learned a lot, and I feel like it was the most valuable."

"The professors and my cohort was the best thing about my experience. The professors are the best professors I have ever had and it's great to know that each one of them deeply cares about me as a person and in my education."

"The most valuable experience I had in the program has been the challenge to persevere and overcome difficult situations/tasks with a modicum of grace under pressure. Each course pushed me in one way or another to grow as a person, to learn to problem solve, troubleshoot, and to keep thinking. I will be better able to face the inevitable challenges that come my way because of the tempering I received in the program."

Externship sites Perspectives from Graduating Class of 2018

The sentiment of our students being an asset to their work environment has been repeated through many different student evaluations. The following are representative comments from the students' clinical affiliated externship sites.

"She helps to monitor supplies in other departments when she is caught up with tasks. She is always looking for work to do and wants to learn more."

"Many days we were short staffed, but we all appreciated the support she provided to our department."

"She was doing our routine morning startup with very little supervision."

"I really missed him when he moved on to his next department."

"Her inquisitive nature challenged us to explain why we do things the way we do...She even found a process flaw in one of our procedures that led me to revise the procedure."

"She gets the consequences of not performing well and goes beyond just doing a test to ensure she does it well."

Section 3 – Program Student Learning Outcomes

Program Educational Objectives refers to items graduates of the program will have knowledge or experience with from their time in the program. Assessment of the program's success in achieving its objectives is measured both by student progress on program specific student learning outcomes (PSLO) and certain requirements by the program's accrediting agency NAACLS.

Assessment changes for class of 2017-2018

Program Assessment for the last several years only included data required of the accrediting agency: graduation, attrition and certification exam rates. Though PSLOs were identified, they were not measured individually. Assessment of class of 2018 included examples of student work from classes meant to assess the specific PSLOs. Also included were external evaluations of student performance from externship site that were matched with specific representative PSLOs.

Program Specific Student Learning Outcomes (PSLO)

Seven measurable program specific learning outcomes have been defined that encompass both the university standards (communication, Inquiry & Analysis, Ethical reasoning, Teamwork, Quantitative Literacy and Diverse perspectives) and the objectives of the MLS program. Several of the standards also match National Accrediting standards. Students are measured for:

1. **Competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including immunology, hematology, clinical chemistry, immunohematology, microbiology, molecular, hemostasis, urinalysis, body fluids, parasitology, mycology, virology and other emerging diagnostic venues.**

This outcome may be measured by the student's work product in all laboratory classes taught during the program. Professionally, students will be expected to demonstrate competency at the completion of on the job training and annually thereafter. The MLS program gives students knowledge of the subjects required to make clinical decisions, and also the ability to perform the analytical testing as they would in the workplace. Each program course has a demonstration of competency through the classroom laboratory exercises. Successful completion of the externship is based on a list of competencies that must be performed while the student is in the workplace.

2. **Proficiency to problem-solve, troubleshoot, and interpret results, and to use statistical approaches when evaluating data.**

This outcome measures student data analysis and inquiry skill as well as their quantitative literacy or ability to interact with written results. Professionally students will be expected to read and interpret clinical data from automated instrumentation to determine if those results are accurate or to identify problems with instrumentation or samples. Student abilities are measured by performance on a comprehensive Certification exam, laboratory exercises and tests in course work throughout the program. Every class in the program focuses on data analysis and troubleshooting to some extent.

3. **Professional and ethical conduct, respecting the feelings and needs of others, protecting the confidence of patient information, and never allowing personal concerns and biases to interfere with the welfare of patients.**

This outcome measures student ethical reasoning with a focus on interprofessional interaction of a team caring for a patient. During participation in OHSU's IPE course, the students in the MLS program are given an opportunity to work with first year medical, RN, PA, dentistry, nutrition, EMS and/or pharmacy students from OHSU as an interprofessional team to work through ethical reasoning scenarios that affect patient care. This project extends the length of the MLS program; the groups meet officially three times on the OHSU campus, then twice on their own time as small groups to complete projects and presentations.

Ethical issues are discussed in all courses throughout the program. Foundations of Medical Laboratory Science I at the beginning of the program assigns students a specific ethics project that was utilized for 2018 ESLO. Students are rated by their externship site at the end of the program for ethical understanding. Through the many team exercises provided students become aware of the diverse perspectives of the care giving team and the patient perspective.

4. Maintaining appropriate composure under stressful conditions.

This new PSLO was introduced by staff during annual Assessment report review at the Department Retreat. Previously part of PSLO 3 and PSLO5, it was decided that a measure of composure under stress should really be its own measurable objective. The program itself is rigorous and stressful; how a student comports themselves in the academic environment may show how they comport themselves in a professionally stressful environment, with heavy workload and emotional demands in the patient care setting. The program strives to measure this objective during the externship experience and on professional development evaluations from faculty during the academic year. Specifically, stress may be measured by cortisol levels in MLS 416 Chemistry II while the students concentrate on this subject.

5. Administrative skills consistent with philosophies of quality assurance, continuous quality improvement, laboratory education, fiscal resource management.

This outcome covers the managerial aspects of coursework. Students who graduate from the MLS program will be qualified to manage the clinical laboratory after two years of professional practice. Students are made aware of continuous improvement activities in their Foundations of Medical Laboratory Science courses and are given several tasks to perform on the subjects while out on externship.

6. Application of safety and governmental regulations and standards as applied to medical laboratory practice.

Since Medical Laboratory science is a highly regulated profession, students are required to become familiar with safety and best practice standards governing their laboratory actions. Students are required to participate in HIPAA education before working with OHSU patient samples. Students learn and perform Quality Control activities for most tests in the classroom laboratories and the Foundations of Medical Laboratory Science II class has an inspection exercise incorporated into the curriculum. This outcome is measured by student performance in quality control activities in the classroom and in externship.

7. Effective communication skills to ensure accurate and appropriate information transfer.

This outcome measures students' ability to communicate orally and in the written word. Oral communication is important to teamwork and will be necessary when dealing with other health care professionals, during work-load hand offs at shift change and during problem solving. Written communication is measured through the writing of reports and procedures. Students entering the program should already have experience with both types of communication. An oral presentation of a comprehensive case study is made during the last term of the didactic portion of the program. Students work in groups to organize and present the case study material. Students are also given a variety of reports to write for the various courses simulating those reports written professionally.

NAACLS Requirements

A review of the results of the following outcomes measures from at least the last three active years must be documented, analyzed and used in program assessment and continuous quality improvement of the program to include an annual submission to NAACLS. Minimum standards include: 1)External certification results 2)Graduation rates 3)Placement rates (i.e., employment positions in the field of study or pursuit of further education) 4)Attrition rates

Section 4 & 5 – Curriculum Map & Assessment Cycle

Assessment methods have gradually changed over the years in order to be a more useful evaluation tool for the program. Initially, the program was only assessed on graduation and certifying exam passage as required by the accrediting agency. Student survey results were introduced in evaluation of class of 2016. These results were found to be a meaningful starting point for making improvements to the program given that the student experience can impact the student ability to learn. External evaluation of student progress was added for evaluation of class of 2017 by introduction of professional development evaluation data into the assessment data. This information appeared to give professional perspective on student outcome achievement immediately after academic course work had been completed. Student achievement at academic coursework reflective of the outcomes was introduced for class of 2018. Utilizing work performed during the program affectively links program specific outcomes to course work in specific classes that can be modified based on the assessment data. This better points work to be done on the program to specific course work and instructors and allows for actionable changes to occur.

PSLO MEASURES

PSLO assessment is taken from student exit survey as an **indirect measure**. Faculty review of the professional development evaluation (a document filled out about the student from the externship site) identified questions on the survey to be **direct measures** of the PSLO at the capstone level. University ESLOs were linked with the program specific learning outcome that most closely reflected coursework that would measure the outcome.

Foundational and Practice level achievement on PSLOs are made by student assessment on individual coursework. All faculty were asked to identify in each of their courses a project or exam from 2017-2018 academic year that would measure each of the listed outcomes. All identified exams and projects were necessary components to the courses and were graded by the instructor of the course according to their classroom specific rubric. Some courses did not lend themselves to every outcome.

PSLO Wording	Competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including immunology, hematology, clinical chemistry, immunohematology, microbiology, molecular, hemostasis, urinalysis, body fluids, parasitology, mycology, virology and other emerging diagnostic venues.	Proficiency to problem-solve , troubleshoot, and interpret results, and to use statistical approaches when evaluating data.	Professional and ethical conduct, respecting the feelings and needs of others, protecting the confidence of patient information, and never allowing personal concerns and biases to interfere with the welfare of patients.	Maintaining appropriate composure under stressful conditions.	Administrative skills consistent with philosophies of quality assurance , continuous quality improvement, laboratory education, fiscal resource management.	Application of safety and governmental regulations and standards as applied to medical laboratory practice.	Effective communication skills to ensure accurate and appropriate information transfer.
PSLO #	1	2	3	4	5	6	7
Direct	Obtains accurate and precise results.	Shows logical thinking and resourcefulness in dealing with problems .	Demonstrates integrity and ethical behavior.	Maintains work Quality and Quantity under stress .	Performs appropriate quality control/ quality assurance procedures.	Follows laboratory institutional safety policies.	Receives/gives information to others effectively & courteously .
Indirect	How has the OIT experience contributed to this outcome?	How has the OIT experience contributed to this outcome?	How has the OIT experience contributed to this outcome?	How has the OIT experience contributed to this outcome?	How has the OIT experience contributed to this outcome?	How has the OIT experience contributed to this outcome?	Please rate your proficiency on this outcome?

ESLO	Quantitative Literacy	Inquiry & Analysis	Ethical Reasoning				Teamwork
------	-----------------------	--------------------	-------------------	--	--	--	----------

CURRICULUM MAP OF PSLO

Courses within the program are identified in the Curriculum Map below with which outcome their coursework best provides data for and their expected level of demonstration for each outcome as either foundational outcome development, practice of foundational outcome, or capstone achievement of the outcome. Questions on the Professional Development Evaluation given every year, that apply to the outcome are specified. The top line refers to the outcomes as numbered in the PSLO list above.

MLS Program Learning Objectives Curriculum Map

F – Foundation

P – Practice

C – Capstone

COURSE	PSLO1	PSLO2	PSLO3	PSLO4	PSLO5	PSLO6	PSLO7
MLS442 Hem I	F	F		F	P	P	
MLS 420 Immunology	F	F		F	P	P	
MLS 432 Found I	F	F	P	F	P	F	
MLS 474 Parasit	P	F		F	P	P	
MLS 415 Chem I	P	F		F	P	P	
MLS 452Hem II	P	P		P	P	P	
MLS 444 Micro I	F	F		F	P	P	
MLS 462 Found II		F	P	P	C	C	C
MLS 449 UA	F	P		P	P	P	
MLS 443 BB I	F	F		F	P	P	
MLS 445 Micro II	P	P		P	P	P	
MLS 416 Chem II	P	P		F	P	P	
MLS 417 Chem III	P	P			C	P	
MLS 424 Hemostasis	P	P		P	P	P	C
MLS 422 Molecular	P	F		P	P	P	C
MLS 453 BB II	P	P		P	P	P	
MLS 464 Myco/Viro	P	F			P	P	
MLS 457 Research		C	C		C	C	C
MLS 463 Found III		C		C	C	C	C
MLS 470	C	C	C	C	C	C	C
MLS 471	C	C	C	C	C	C	C
MLS 472	C	C	C	C	C	C	C
MLS 473	C	C	C	C	C	C	C
PDE Question	10	18	36	8	7	3	50

Utilizing the best fit course to the outcome, an assessment cycle map was created. As much as possible, two courses are assigned to give data for the outcome each year. As many courses as were best fit for demonstration of the outcome were rotated through the cycle map giving data on the courses from different cohorts. This information should give the program data that can be more directed toward specific coursework as the focus of improvement. University Student Learning Outcomes are included in the cycle map as well.

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
PSLO1	MLS 449 UA MLS 452 Heme II	MLS 474 Parasitology MLS 416 II Lab Practicum	MLS 420 Immunology MLS 453 Immunoematology II	MLS 422 Molecular MLS424 Hemostasis	MLS 464 Mycology/virology MLS 445 Micro II
PSLO2	MLS 464 Mycology/virology MLS 445 Micro II	MLS 449 UA MLS 452 Heme II	MLS 474 Parasitology Case Study MLS 417 Chem II	MLS 420 Immunology MLS 453 Immunoematology II	MLS424 Hemostasis MLS 422 Molecular
PSLO3	MLS 432 Ethics Project	MLS 432 Ethics Project	MLS 432 Ethics Project	MLS 432 Ethics Project	MLS 432 Ethics Project
PSLO4	Not Measured	Not Measured	MLS416 Stress Test	MLS416 Stress Test	MLS416 Stress Test
PSLO5	MLS 462 Education Project	MLS 462 Fiscal Management Quiz	MLS 432 QC/QA test	MLS 462 Education Project	MLS 462 Fiscal Management Project
PSLO6	MLS 432 Safety Project	MLS 462 CAP Inspection Quiz	MLS 432 Safety Project	MLS 462 CAP Inspection Project	MLS 432 Safety Project
PSLO7	MLS 462 SOP project (written) MLS 416 Chem II Presentation (oral)	MLS 417 Method Validation (written) MLS 453 Case Study (oral)	MLS 462 SOP project (written) MLS 422 Teach the class Assignment (oral)	MLS 417 Method Validation (written) MLS 472 Case Study (oral)	MLS 462 SOP project (written) MLS 422 Teach the class Assignment (oral)
University ESLD	Inquiry and Analysis	Ethics	Teamwork	Quantitative Literacy	Diverse Perspectives

Section 6 – Assessment Activity

Professional Development Evaluations

Students are evaluated for achievement on professional objectives in knowledge, skills, habits and attitudes by a Professional Development Evaluation form (PDE). Objectives are listed and the student is rated for each objective by an evaluation scale with a simple score of 1-3 (Not Met, Met, Exceed). Instructions for the rating scale are listed at the top of all evaluations.

PDE are given to students during the didactic 12- month course work by all of their instructors at the end of Summer Term. Some courses do professional development evaluations earlier in the year to measure student progress throughout the program. Students may be asked to rate themselves utilizing the form and then instructors give input to the student after review. If an instructor recognizes an issue with a particular student, a PDE may be filled out before the end of summer term. These evaluations are meant to highlight student strengths and weaknesses in professional conduct and laboratory activities before they are released to externship.

During each externship, an evaluation is filled out for the student per department the student rotates in. The externship site is allowed to have as many people as have worked with the student during their 4 weeks in the department to evaluate the student. All student scores from externship PDE are averaged per subject area (microbiology, chemistry, Hematology and Immunohematology) by the Instructors after the PDE documents are returned.

Minimum acceptability standard for this is 95% of all students receiving a grade of 2 or greater on the specified professional criteria. Students receiving less than a 2 will require review by the program's progress and promotion committee. This may result in remediation of the student. Scores from externship site evaluations only are utilized as a capstone measure of the specified outcome.

Student Exit Survey Data

As an indirect measure, student exit survey from the class **graduating in December of 2018** asked each student how they felt the program met the stated PSLO. Student perspective on their own learning is relevant to demonstrate confidence with the material given and general satisfaction with the instruction given. Student exit survey is meant to evaluate student satisfaction at the end of the program. Minimum acceptability standard for student exit survey is 90% of students rating themselves as impacted quite a bit or very much by their time in the program for the stated outcome.

Additionally, individual courses were evaluated using a question from the Student exit survey: "To what extent did each of the courses listed below contribute to your knowledge of the subject and prepare you to enter the medical lab workforce as a competent, knowledgeable, and skilled professional?" Student responses were reviewed by faculty and compared with the responses from the exit survey available from previous year. For the 2018 student exit survey, 32 of 46 students responded. Minimum acceptability standard for this new outcome measure for the individual course is a rating of <10% responding "not at all".

Student Exit Survey Data for class of 2018

#	Question	Very much	Quite a bit	Some	Very little	Total
1	MLS 415 Clinical Chemistry I	81.25% 26	15.63% 5	3.13% 1	0.00% 0	32
2	MLS 416 Clinical Chemistry II	84.38% 27	12.50% 4	3.13% 1	0.00% 0	32
3	MLS 417 Clinical Chemistry III	62.50% 20	18.75% 6	9.38% 3	9.38% 3	32
4	MLS 420 Clinical Immunology/ Infectious Serology	78.13% 25	15.63% 5	6.25% 2	0.00% 0	32
5	MLS 457 Advanced Chemistry/Immunology Concepts	75.00% 24	12.50% 4	12.50% 4	0.00% 0	32
6	MLS 422 Molecular Diagnostic Methods	62.50% 20	12.50% 4	25.00% 8	0.00% 0	32
7	MLS 424 Hemostasis	81.25% 26	12.50% 4	6.25% 2	0.00% 0	32
8	MLS 442 Hematology I	90.63% 29	6.25% 2	3.13% 1	0.00% 0	32
9	MLS 452 Hematology II	90.63% 29	6.25% 2	3.13% 1	0.00% 0	32
10	MLS 449 Principles of Urinalysis	84.38% 27	15.63% 5	0.00% 0	0.00% 0	32
11	MLS 443: Immunohematology I	56.25% 18	34.38% 11	9.38% 3	0.00% 0	32
12	MLS 453 Immunohematology II	62.50% 20	31.25% 10	3.13% 1	3.13% 1	32
13	MLS 444 Microbiology I	84.38% 27	15.63% 5	0.00% 0	0.00% 0	32
14	MLS 445 Microbiology II	84.38% 27	15.63% 5	0.00% 0	0.00% 0	32
15	MLS 464 Mycology / Virology	53.13% 17	15.63% 5	25.00% 8	6.25% 2	32
16	MLS 474 Parasitology	65.63% 21	28.13% 9	6.25% 2	0.00% 0	32
17	MLS 432 Foundations of MLS I	59.38% 19	25.00% 8	15.63% 5	0.00% 0	32
18	MLS 462 Foundations of MLS II	37.50% 12	31.25% 10	18.75% 6	12.50% 4	32
19	MLS 463 Foundations of MLS III	40.63% 13	18.75% 6	25.00% 8	15.63% 5	32
20	MLS 470, 471, 472, 473 Externships	93.75% 30	6.25% 2	0.00% 0	0.00% 0	32

PSLO DATA for Graduating Class of 2018

Meets Criteria Does not Meet Criteria

Minimum Criteria

Direct: 85% of students receive a B or Greater

Outside: 95% receive a score of 2 or Greater.

Indirect: 85% choose "Quite a bit" or "Very much"

Student Learning Outcome	Measures	Results
PSLO 1	<p>Direct: MLS 449 UA Final</p> <p>Direct: MLS 452 Home II Assignment</p> <p>Outside: Externship PDE performance on action item #10 "obtains accurate and precise results"</p> <p>Indirect: Student Exit Survey question "How has the OIT experience contributed to this outcome?"</p>	<p>Direct: 100% scored B or greater on UA Assignment. 85% scored B or greater on Home II Assignment</p> <p>Outside: 100% >2 on PDE. 78% received highest score possible</p> <p>Indirect: 100% rated "Quite a bit" or "very much"</p>
PSLO 2	<p>Direct: Mycology Project</p> <p>Direct: Microbiology II project</p> <p>Outside: Externship PDE performance on action item #18 "Shows logical thinking and resourcefulness in dealing with problems"</p> <p>Indirect: Student Exit Survey question "How has the OIT experience contributed to this outcome?"</p>	<p>Direct: 100% scored B or greater on Micro II project. 100% scored B or greater on Mycology project</p> <p>Outside: 97.4% >2 on PDE. 77% received highest score possible</p> <p>Indirect: 93.8 % rated "Quite a bit" or "very much"</p>
PSLO 3	<p>Direct: Ethics Test score</p> <p>Outside: Externship PDE performance on action item #36 "Demonstrates integrity and ethical behavior"</p> <p>Indirect: Student Exit Survey question "How has the OIT experience contributed to this outcome?"</p>	<p>Direct: 100% scored B or greater on Ethics project</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: 84.4% rated "Quite a bit" or "very much"</p>
PSLO 4	<p>Direct: Stress Test score</p> <p>Outside: Externship PDE performance on action item #8 "Maintains work quality and quantity under stress"</p> <p>Indirect: Student Exit survey question "How do you feel your overall proficiency on this goal is?"</p>	<p>Direct: not measured</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: not measured</p>
PSLO 5	<p>Direct: Education Project from Foundations II</p> <p>Outside: Externship PDE performance on action item #7 "performs appropriate quality control/quality assurance procedures"</p> <p>Indirect: Student Exit Survey question "How has the OIT experience contributed to this outcome?"</p>	<p>Direct: 93.3% scored B or greater on Education Project</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: 84.4% rated "Quite a bit" or "very much"</p>
PSLO 6	<p>Direct: Safety project from Foundations I</p> <p>Outside: Externship PDE performance on action item #3 "follows laboratory institutional safety policies"</p> <p>Indirect: Student Exit Survey question "How has the OIT experience contributed to this outcome?"</p>	<p>Direct: 100% received B or greater on Safety project</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: 95.8 % rated "Quite a bit" or "very much"</p>
PSLO 7	<p>Direct: SOP Assignment from Foundations II (written)</p> <p>Direct: Chem II Presentation (oral)</p> <p>Outside: Externship PDE performance on action item #50 "Receives/gives information to others effectively & courteously"</p> <p>Indirect: Student exit survey question "How do you feel your overall proficiency with this goal is?"</p>	<p>Direct: 97.8% received B or greater on SOP Assignment. 97.8% received B or greater on Chem II project.</p> <p>Outside: 100% >2 on PDE. 84% received highest score possible</p> <p>Indirect: 100% rated "Quite a bit" or "very much"</p>

Assignments Measuring the Outcomes

1. **Competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including immunology, hematology, clinical chemistry, immunohematology, microbiology, molecular, hemostasis, urinalysis, body fluids, parasitology, mycology, virology and other emerging diagnostic venues.**

MLS 449 UA Final: Demonstration of competency to perform manual microscopic urinalysis is graded against actual expected results. See attached assignment in the Appendix.

MLS 452 Heme II Assignment: Demonstration of competency to perform microscopic hematology differentials is graded against actual expected results. See attached assignment in the Appendix.

Class of 2019 Preliminary Data was collected from student scores on Chemistry II Laboratory Practical Exam and Parasitology Practical Exam.

2. **Proficiency to problem-solve, troubleshoot, and interpret results, and to use statistical approaches when evaluating data.**

Mycology Assignment: Students work individually on interpreting data from both biochemical reactions and morphology features to identify organisms from case studies in a simulated test environment (Final Exam).

Microbiology II: students work individually on interpreting data from biochemical workups to arrive at a diagnosis on a microbiology case study.

Class of 2019 Preliminary Data was collected from student scores on the Urinalysis Final Exam and Hematology II Unknown Practical Exam.

3. **Professional and ethical conduct, respecting the feelings and needs of others, protecting the confidence of patient information, and never allowing personal concerns and biases to interfere with the welfare of patients.**

Ethics Project: Students work together in groups to assess the ethical quandaries on the fictional laboratory scenarios. As an added element, students then make up their own scenario that might have some ethical questions involved and submit for instructor review.

4. **Maintaining appropriate composure under stressful conditions.**

No project data has been directly measured for this PSLO for class of 2018 or 2019. For class of 2020, the assignment measuring this PSLO will be the Stress Test assigned in MLS 416:

5. **Administrative skills consistent with philosophies of quality assurance, continuous quality improvement, laboratory education, fiscal resource management.**

Education project: Students work in groups to create a 3 hour educational module on a subject of choice as relates to medical laboratory science. Select students go on to utilize their module in the MLS107 class presented to high school student in the summer term. See assignment in the appendix.

Class of 2019 Preliminary Data was collected from student scores on open book Laboratory Finances Quiz

6. **Application of safety and governmental regulations and standards as applied to medical laboratory practice.**

Safety Project: Students work in groups to create an exam to test a person's knowledge of clinical laboratory safety standards. See assignment in the appendix.

Class of 2019 Preliminary Data was collected from student scores on open book Laboratory History and Inspections Quiz

7. **Effective communication skills to ensure accurate and appropriate information transfer.**

Written communication is demonstrated by students on a Standard Operating Procedure assignment. Students write directions to perform laboratory testing in a format matching the professionally accepted format for standard operating procedures. See assignment attached in the appendix.

Oral communication is demonstrated by student presentations in Chem II. Students work in groups of 3-4 to develop a fictional case study to interpret lab results, diagnosis, and therapy options; and present results to class in PowerPoint format. Students grade is based upon successful completion of the assignment objectives and how well they performed in the group dynamic.

Class of 2019 Preliminary Data was collected from student scores on Written Method Validation Assignment from Chemistry III and Oral Case Study presentations combining Hematology and Immunohematology.

NAACLS Outcomes

NAACLS reported outcomes for **graduating class of 2018** are listed separately from PSLO outcomes. Minimum NAACLS accreditation standards are included in the table below for each item listed.

Board of Certification scores demonstrate student overall knowledge of the subject of Medical Laboratory Science and student test taking ability at the Capstone level. Students will not be allowed to work as Medical Laboratory Scientists unless they pass the BOC exam. Therefore, the success of the program overall hinges on these scores. Instructors write exams designed to familiarize students with standard board exam questions, and students are required to study using a Board Exam approved study guide during their externship.

Graduation rates are determined as a percentage of students who have begun the final half of the program who go on to successfully graduate from the program. Our program consists of 5 consecutive quarter-terms. Students start in the fall and complete the program at the end of the following fall term. Accordingly, the program determined the final half to be when students begin the spring or third term of the five terms of the program. Attrition is determined as the number of students admitted to the program that do not go on to graduate within in the 15-months.

The employment data has been developed as a combination of Graduate Exit Survey and the MLS program contact with graduates. NAACLS requires MLS programs to report yearly average placement rates of students who found employment in the field/ closely related field or who are continuing their education within one year of graduation. They do not include students for which we do NOT have information on or those that choose to not look for employment in the field.

	NAACLS Minimum Standards	Class of 2018	National Average for MLS programs reported to NAACLS in 2018
Certification Passage	75%	96.7%	88%
Graduation Rate	70%	100%	95%
Employment Rate	70%	96%	96%
Attrition	Must be documented	0	Not reported

Section 7 - Closing the Loop: Evidence of Improvement in Student Learning.

The below table compares the assessment data for PSLOs and NAACLS requirements over the last 5 years. Looking at the current data compared to previous, demonstrates that student perspectives on their own progress within the program of PSLOs has improved in all categories. PDE evaluations also demonstrated an increase in high scores of professionalism across the categories from class of 2017 to 2018. While graduation rates and employment rates have held steady over the last several years.

Outcomes	Class of 2019 (preliminary)	Class of 2018 <small>*Changed direct measure of outcome</small>	Class of 2017 <small>*Changed minimum standard of indirect measure</small>	Class of 2016	Class of 2015
PSLO1	<p>Direct: 100% scored B or greater on Parasitology, 100% scored B or greater on Chem I</p> <p>Outside: 100% of student reports returned received >2 on PDE</p>	<p>Direct: 100% scored B or greater on UA final, 85% scored B or greater on Home I Assignment</p> <p>Outside: 100% >2 on PDE, 78% received highest score possible</p> <p>Indirect: 100% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 95.7% pass rate</p> <p>Outside: 100% >2 on PDE, 96% received highest grade possible</p> <p>Indirect: 96.5% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 97.9% pass rate</p> <p>Indirect: 94.5% student exit survey rated above "somewhat"</p>	Not assessed
PSLO2	<p>Direct: 100% scored B or greater on UA project, 80.4% scored B or greater on Home project</p> <p>Outside: 100% of student reports returned received >2 on PDE</p>	<p>Direct: 100% scored B or greater on Micro project, 100% scored B or greater on Micrology seminar</p> <p>Outside: 97.4% >2 on PDE, 77% received highest score possible</p> <p>Indirect: 93.8% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 95.7% pass rate</p> <p>Outside: 100% >2 on PDE, 67% received highest grade possible</p> <p>Indirect: 89.7% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 97.9% pass rate</p> <p>Indirect: 82.9% student exit survey rated above "somewhat"</p>	Not assessed
PSLO3	<p>Direct: 100% scored B or greater on Ethics project</p> <p>Outside: 100% of student reports returned received >2 on PDE</p>	<p>Direct: 100% scored B or greater on Ethics project</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: 84.4% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 95.7% pass rate</p> <p>Outside: 98.8% >2 on PDE</p> <p>Indirect: 82.8% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 97.8% pass rate</p> <p>Indirect: 80% student exit survey rated above "somewhat"</p>	Not assessed
PSLO4	<p>Stress Test not given *New PSLO introduced</p> <p>Outside: 100% of student reports returned received >2 on PDE</p>	<p>Outside: 100% >2 on PDE</p>	Not assessed	Not assessed	Not assessed
PSLO5	<p>Direct: 100% scored B or greater on Finance Exam</p> <p>Outside: 100% of student reports returned received >2 on PDE</p>	<p>Direct: 97.5% scored B or greater on Education Project</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: 84.4% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 95.7% pass rate</p> <p>Outside: 100% >2 on PDE</p> <p>Indirect: 86.2% rated "Quite a bit" or "very much"</p>	<p>Direct: BOC 97.9% pass rate</p> <p>Indirect: 87.8% student exit survey rated above "somewhat"</p>	Not assessed
PSLO6	<p>Direct: 79% received B or greater on Inspection Exam</p>	<p>Direct: 100% received B or greater on Safety project</p> <p>Outside: 100% >2 on PDE</p>	<p>Direct: BOC 95.7% pass rate</p>	<p>Direct: BOC 97.9% pass rate</p>	Not assessed

	Outside: 100% of student reports returned received >2 on PDE	Inside: 95.8% rated "Quite a bit" or "very much"	Outside: 100% >2 on PDE Indirect: 99.1% rated "Quite a bit" or "very much"	Indirect: 91.2% student exit survey rated above "somewhat"	
PS107	Direct: 100% received it or preferred Oral Case Study. Outside: 100% of student reports returned received >2 on PDE	Direct: 97.8% received B or greater on SQS Assignment, 97.8% received B or greater on Chem II project Outside: 100% >2 on PDE 84% received highest score possible Indirect: 100% rated "Quite a bit" or "very much"	Direct: BOC 95.7% pass rate Outside: 100% >2 on PDE 79% received highest grade possible Indirect: 98.5% rated "Quite a bit" or "very much" *Changed Survey Question reviewed	Direct: BOC 97.9% pass rate Indirect: 68.5% student exit survey rated above "somewhat"	Not assessed
Average Certification score	NA	529 *New BOC published	592	564	538
Certification Rate	NA	86.7% total pass rate 81.3% first time pass rate	95.7% total pass rate 89% first time pass rate	97.9% total pass rate 91.5% first time pass rate	95% total pass rate 91.1% first time pass rate
Graduation Rate	NA	100%	98%	94%	100%
Employment	NA	96%	100%	100%	98.9%
Attrition #	2/44	0/44	1/46	0/49; 2 enrolled to graduate with class of 2017	1/46

Student Exit Survey Data by individual class

#	Response of "Very Little" regarding class room preparation for workforce entry	2017	2018
1	MLS 415 Clinical Chemistry I	10.34%	0.00%
2	MLS 416 Clinical Chemistry II	10.34%	0.00%
3	MLS 417 Clinical Chemistry III	13.79%	9.38%
4	MLS 420 Clinical Immunology/ Infectious Serology	17.24%	0.00%
5	MLS 457 Advanced Chemistry/Immunology Concepts	17.24%	0.00%
6	MLS 422 Molecular Diagnostic Methods	0.00%	0.00%
7	MLS 424 Hemostasis	0.00%	0.00%
8	MLS 442 Hematology I	0.00%	0.00%
9	MLS 452 Hematology II	0.00%	0.00%

10	MLS 449 Principles of Urinalysis	0.00%	0.00%
11	MLS 443: Immunohematology I	3.45%	0.00%
12	MLS 453 Immunohematology II	0.00%	3.13%
13	MLS 444 Microbiology I	0.00%	0.00%
14	MLS 445 Microbiology II	0.00%	0.00%
15	MLS 464 Mycology / Virology	3.45%	6.25%
16	MLS 474 Parasitology	3.45%	0.00%
17	MLS 432 Foundations of MLS I	3.45%	0.00%
18	MLS 462 Foundations of MLS II	10.34%	12.50%
19	MLS 463 Foundations of MLS III	3.45%	15.63%
20	MLS 470, 471, 472, 473 Externships	0.00%	0.00%

Section 8 - Data-driven Action Plans: Changes Resulting from Assessment

Faculty Driven Assessment Process Changes

Faculty met August 15th 2019 before the new cohort (class of 2020) began in order to review assessment data from the previous year and plan for improvements to curriculum. Action plan from assessment of class of 2017 was to review that the PDE questions used as an outside measure of PSLO were the correct evaluation of that objective. Faculty approved the use of all PDE questions currently being measured and decided to add an additional PSLO for measurement regarding stress. Much focus has been placed at professional conferences in 2019 (CLEC and ASCLS national) regarding professional level stress management. While stress was already a part of one of the learning objectives, faculty felt that more work could be done to improve student stress management if it was separated into its own objective. With this in mind, a plan was put into place going forward to evaluate student stress management both during the rigorous academic year and during externship. Data for class of 2018 and 2019 could only be pulled for externship stress management. The student exit survey will be modified to collect indirect data for class of 2019 and class of 2020 will provide assignment data as well as indirect and outside measures.

Faculty also reviewed the university suggestion of lowering the minimum standard for the indirect assessment of student exit survey response from 90% to 80% which is more in alignment with other department standards. It was felt that because the program has a higher admission standard than other departments, the standard should remain higher than other departments. In comparing the data from previous years with an 80% minimum standard, the data suggests similar actions would have been taken. It was decided that the minimum standard for indirect measurement of assessment should be set to 85% which was lower than previous threshold but higher than the average university department. Current data was evaluated with an 85% minimum standard on exit survey responses.

A suggestion was made by University Assessment Report evaluation to link university ESLOs to PSLOs in order to better align program goals with university goals for students. In preparing this report, ESLOs were linked to the PSLO which best reflected the student work that might showcase the university goal. The department found that almost all university goals were reflected in program specific objectives with the exception of Diverse Perspectives. More work will be done to evaluate if a program specific objective should be measured on this University outcome. Results of this alignment should make selection of student work that measures annual ESLOs more seamless for faculty in future.

Timing of this report was also of question this year. How useful is assessment data from class of 2018 when a report is published as faculty are prepping for class of 2020? This program graduates students in December. Students typically take two months after graduation to take the certifying exam and six months after graduation they should be employed. Student exit survey data is compiled by August after the year they have graduated. It is not feasible to prepare assessment report for an earlier more useful due date, because the data is not available. It is accepted by department faculty to continue on the university schedule of assessment cycle reporting.

Student Exit Survey Results Analysis

The 2017 Assessment report began looking at the student exit survey responses for more than PSLO data. One particular question of interest broke down individual class contribution to student learning from a student perspective. The question is worded as such: "To what extent did each of the courses listed prepare you to enter the medical lab workforce as a competent knowledgeable, and skilled professional?" This question was of such interest to faculty that the question was reworded for class of 2018 exit survey to gain more clear insight on individual class contribution to student knowledge after graduation. Rewording: "To what extent did each of the courses listed contribute to your knowledge of the subject and prepare you to enter the medical lab workforce as a competent knowledgeable, and skilled professional?" Data from the 2017 survey and 2018 survey are compared in this report and were presented to faculty in October. Faculty decided to keep the change for 2019 exit survey and are looking forward to reviewing that data.

The question itself speaks to the relevance of the course work to the student medical laboratory science practice in the workplace and on externship. If the program mission is to "prepare students to meet workplace challenges", it stands to reason, upon graduation, students should feel that the course work prepared them. Interestingly, courses that fell out of favor with students in both years happened to be taught by first year faculty. The improvement in student perspective seen in the chemistry courses, may demonstrate the faculty member's increased comfort level with teaching the course. For the two classes failing to meet the minimum standard for class of 2018, the faculty member reviewed student responses to suggestions for the individual courses and applied some changes that may be reflected in the 2019 student exit survey data. MLS462 experienced laboratory activity changes that most reflected current laboratory practices. MLS463 included additional optional activities that were suggested by class of 2018 that reflected current laboratory practices.

Having this question be included as part of assessment can individually assess instructor and course improvement activities related to the mission of the program. Additionally, many program faculty have chosen to participate in Excellence in Teaching activities provided by the University. One faculty member who is part of the Excellence in Teaching Committee taught the Oregon Tech Excellence in Teaching (OTET) workshop provided to staff the week before Convocation, while two other faculty members were participants. Annually, all faculty members participate in the Excellence in Teaching activities provided to staff during Convocation. All department faculty have agreed to participate in peer evaluations by other department faculty and will be utilizing suggestions in improving their curriculum and teaching.

Assessment Budget Alignment

Each year, the Medical Laboratory Budget allows capital for improvements to the program to be made that are intended to maintain or improve student progress on program objectives. A major indicator of program success is student performance on ASCP certifying exam. To that end the program maintains an annual subscription to Media Lab, an online test bank database meant to mimic certifying exam environment. Students utilize media lab content to supplement coursework throughout the academic year which culminates in access to the test bank during externship when students are expected to independently study for their certifying exam.

The program has made it a point to budget for at least two faculty members to travel annually to an important conference, Clinical Laboratory Educators Conference (CLEC), the national meeting of laboratory educators as supported

by the American Society for Clinical Laboratory Scientists professional organization. Attendance at this conference allows faculty to learn the most up to date information on improvements made to the certifying exam contents and even make contributions to those contents in their specific subject of expertise. In this way, the faculty make valuable contacts with other facilities and keep abreast of current best practices in both teaching and the profession. In 2020, due to budget constraints, faculty will be unable to attend the conference. This was a difficult decision to make for the program, however faculty will attempt to remain involved with the professional program in other ways that keep their teaching current.

Of paramount importance to maintaining student competence at the level currently demonstrated in this report, laboratory equipment has needed to be maintained and upgraded. The student laboratory is expected to give the student the ability to operate as they would in the professional world. To that end, small equipment such as centrifuges and pipettes have been purchased for every workstation so that each student can have the same individualized laboratory experience that allowed them to feel confident in laboratory procedures as they enter the workplace. In addition to small equipment, class of 2018 saw the implementation of Laboratory Desktop tablets to all workstations. These tablets have been installed with images meant to mimic those utilized in the workplace in problem solving. Students are also using the tablets to access Standard Operating Procedures in similar manner to what they would be doing in the workplace now that hospitals have digitized their document control processes.

Future goals for department budget include maintenance and upgrades to Laboratory analyzers representative of those that students would be working with in their professional careers. The field of laboratory science is moving forward with more complex automation that students need to be familiar with. Familiarity with this equipment would mean in competence of operation and troubleshooting of equipment parts. Some budget may have to be set aside to support improvements to the laboratory space intended for a simulated laboratory. Comments on student exit survey almost always include some mention of the need for familiarity with automation before the end of the program.

Breakdown of PSLO data Analysis

[PSLO1 - Competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including immunology, hematology, clinical chemistry, immunohematology, microbiology, molecular, hemostasis, urinalysis, body fluids, parasitology, mycology, virology and other emerging diagnostic venues. & ESLO Quantitative Literacy.](#)

Data from class of 2018 indicate that the program is meeting this outcome. External measures from student externship experience, internal measure of student work, and student response on exit survey all point to satisfaction of this criteria. Further, if students were not competent in all areas of the laboratory, they could not pass the Board Certifying Exam, as they have in higher percent than national averages. Comparing class of 2018 data with data from previous years, this program has continued to maintain good standing on this particular program outcome. This year the student ability to perform microscopy both in the realm of urinalysis and hematology directly indicates that the students are competent to perform laboratory testing. Regarding Quantitative Literacy which the university defines as "the ability to appropriately extract, interpret, evaluate, construct, communicate, and apply quantitative methods to solve problems" the post-analytical interpretation of data gathered during hematology and urinalysis microscopy exercises demonstrates student quantitative literacy. Performance on BOC exams also supports the students' ability to interpret lab produced data.

Action by faculty planned regarding this item is to introduce a comprehensive simulated laboratory experience to student laboratory the summer before externship. This will test student quantitative literacy in a simulated environment. It will also build student confidence in their ability to appropriately multi-task the laboratory procedures they have learned through the academic portion of the curriculum. Faculty are expected to work up a plan for how this simulated laboratory will fit into the curriculum.

[PSLO2 - Proficiency to problem-solve, troubleshoot, and interpret results, and to use statistical approaches when evaluating data & ESLO Inquiry and Analysis](#)

Data from class of 2018 indicate that the program is meeting this outcome. External measures from student externship experience, internal measure of student work, and student response on exit survey all point to satisfaction of this criteria. Further, student exit survey data appears that the program is producing cohorts that are feeling more comfortable with their abilities regarding this objective. Student performance on mycology and microbiology unknowns support their ability to inquire and choose a path to an appropriate diagnosis. In both assignments, students were required to synthesize the information they were given, to choose and

perform tests to gather more data all to arrive at a single answer to the patient case. Regarding Inquiry and Analysis which the university defines as "posing meaningful questions about situations and systems, gathering and evaluating relevant evidence and articulating how that evidence justifies decisions" the students' ability to problem solve, choose and perform tests to gather data and make a decision regarding diagnosis exemplifies the objective posed by the university.

Class of 2019 was evaluated on performance of problem solving unknowns in Urinalysis and Hematology. While they met the minimum goal for performance in urinalysis, they fell short of meeting in Hematology. Since this was the first year these assignments were used to evaluate this particular PSLO, this data will serve as baseline for improvement measurement over time. The Hematology instructor is eager to compare the grades for this class assignment over the coming years. The assessment process has keyed this instructor into comparing student data on important assignments over multiple years as a way to judge efficacy of the assignment.

The ability to problem solve is a difficult item to teach because it involves creating a student thought process through novel situations. It requires a student to move beyond proscribed laboratory procedures, to make inquiries and test theories on their own. In order to evaluate student progress on this objective, this program will continue utilizing patient unknown samples that students will have to problem solve a course of action on. Many classes have incorporated equipment troubleshooting days to the laboratory as well. Instructors are expected to have operating procedures for equipment already on campus and to evaluate their equipment wish lists for the simulated laboratory environment ready for fiscal budget 2020.

PSLO3 - Professional and ethical conduct, respecting the feelings and needs of others, protecting the confidence of patient information, and never allowing personal concerns and biases to interfere with the welfare of patients & ESLO Ethical Reasoning

Data from class of 2018 indicate that the program is meeting this object both in external evaluations of student ethical behavior and in student academic work. Student exit survey results continue to progress toward meeting this objective at the minimum standard of 85% contribution from their OIT experience. If one looks at the student survey results without the question of OIT influence, 100% of students felt confident of their abilities in meeting this objective. It is therefore likely that the students felt that their own behavior was ethical regardless of their time in the program. This pattern holds true if looking at the 2017 data; 97% of students felt confident in their ability to meet the objective.

Regarding Ethical reasoning which the university defines as "the process of recognizing which decisions require ethical judgements, determining potential reasonable courses of action and finding support for potential courses of action" the program gathered data this year for the university study of this outcome from the student code of ethics exam from MLS 432. The ethics exam gave a scenario to students and students were required to determine which part of the scenario required ethical decision making, then to use the code of ethics and their own personal code of ethics to determine a best course of action.

Much of our program focuses on maintaining patient confidentiality because of potential legal ramifications that a potential workplace might face. The code of ethics portion of this objective is touched upon in this particular assignment and then again when the students are working in their interprofessional groups at OHSU (IPE) comparing different codes of ethics for the different health care professions. New for class of 2019, the assignment asked students to think of a situation where a person might choose a separate course of action and to list the ethics behind that decision, in order to encourage students to think beyond their perspectives. Class of 2019 was also the first class to be involved in IPE and compare different codes of ethics. These changes may influence student perspectives regarding the University's contribution to their abilities in this arena. Faculty are expected to actively participate in IPE going forward and encourage student attendance at IPE as well.

PSLO4 - Maintaining appropriate composure under stressful conditions & ESLO Diverse Perspectives

Faculty felt that the ability to maintain composure under stressful conditions belonged to its own category. It was already being measured for student externship experience, but the data was not part of an official assessment process. At this point students appear to be able to maintain composure in the work environment regardless of stress levels. More data on this is desired by faculty.

An assignment measuring stress reaction in chemistry had already been identified in the previous assessment cycle. This assignment was intended to alternate with the ethics assignment to measure student ethics and composure under stress. This year, the stress assignment was not given to class of 2019. In preparation for the assignment, the students experience such stress about the assignment that the exercise was ultimately abandoned. For class of 2020, students will not be told about the exercise ahead of time, in order to prevent this stress reaction. The cancelled assignment spurred the faculty desire to measure this as a part of

assessment. Healthcare is a stressful environment, part of which is made worse by interactions between people from different perspectives. If a student can adequately maintain composure regardless of internal or external stressors and still maintain quality of work, they are doing their best for the patient.

Now that the faculty have deemed this an important objective, course materials must reflect this. Faculty have been tasked to include stress management to their courses and to tease out assignments that may best reflect student progress on these items. MLS 462 covers HR conflict management scenarios.

PSLO5 - Administrative skills consistent with philosophies of quality assurance, continuous quality improvement, laboratory education, fiscal resource management.

Data from class of 2018 indicate that the program is meeting this object both in external evaluations of student quality control performance and in the student performance on the education methods project. Student exit survey results are on the edge of meeting this objective at the minimum standard of 85% contribution from their OIT experience. Comparing responses from the students proficiency and the university contribution to this objective, students felt less confident about their own abilities on this objective than the university contribution to this objective.

This objective does encompass quite a bit of material. A student must understand quality assurance and quality control which is asked about on their PDE and is demonstrated in their daily laboratory activities. Also a student must show abilities in fiscal management which they aren't expected to do in practice until they are in management positions. Then, proficiency in laboratory education which they might do after their own training is complete a year after graduation. The rotation of assignments to demonstrate these different aspects of the single objective should reveal some interesting data that will help interpret students lack of confidence on this objective. Students were assigned an education project for class of 2018 evaluation of this objective, which 93.7% achieved a grade of B or higher on. Class of 2019 was rated on performance on a fiscal management quiz which 100% of students passed with a grade of B or higher. Class of 2020 will be rated on their scores on a Quality control exam.

Admittedly, more time in the curriculum is spent on quality control performance than any other aspect of this objective. Quality control will be a part of their daily existence as a laboratorian. Only some students will move into roles requiring education skills and fiscal management skills. It would therefore be irresponsible to spend sufficient curricular time on fiscal resource management and laboratory education to increase student confidence in these arenas. Action for this particular item will be in improving the rubrics for the assignments used to measure these items rather than focusing on student confidence from the exit survey data. Faculty should be sure that students can adequately perform tasks related to fiscal management and education at the time of assignment completion.

PSLO6 - Application of safety and governmental regulations and standards as applied to medical laboratory practice.

Data from class of 2018 indicate that the program is meeting this outcome. External measures from student externship experience, internal measure of student work, and student response on exit survey all point to satisfaction of this criteria. Further, comparing class of 2018 data with data from previous years, this program has continued to maintain good standing on this particular program outcome.

Safety standards are applied for laboratory practices daily in the student lab and on professional externship. All classes mention government standards in relation to document control and how a particular practice came into being. Student knowledge of this objective was measured by student performance on a safety exam which required the student to have the ability to understand and teach the information to others.

An additional element of measure for this particular outcome to be considered might be the number of student safety events occurring in student lab and on externship. These numbers will begin to be collected for staff review for the current cohort of students.

Class of 2019 was tested on their ability to recall government regulations and standards and did not meet the minimum standard for this aspect of the PSLO. Since this is the first year this assignment has been used for assessment, this assignment will serve as a baseline for improvement activities. The instructor is looking forward to improving the assignment and course content to best reflect the intent of the objective.

PSLO7 - Effective communication skills to ensure accurate and appropriate information transfer & Teamwork

Data from class of 2018 indicate that the program is meeting this outcome. External measures from student externship experience, internal measure of student work, and student response on exit survey all point to satisfaction of this criteria. Further, comparing class of 2018 data with data from previous years, the change made in 2017 regarding which student exit survey question is utilized in evaluation of this objective appears to be a good choice. Student communication is evaluated academically both by performance on a written assignment and oral assignment. Oral assignments are given by group. Oral assignment grades are dependent on how well the team works together to produce the final product. Communication amongst teammembers being a valuable life skill for working within the laboratory and within interdisciplinary health care teams.

The 2019 and 2020 curriculum has spent much time emphasizing the team aspect of laboratory medicine. Through participation in interdisciplinary teams, students are made aware of the contribution to the health care team and group exercises are especially important when working within an academic cohort. The university defines teamwork as "the ability to accomplish group tasks and resolve conflict within groups". Measurement of teamwork as a component of the oral presentation will continue to be improved as we move into the ESLO data gathering of Teamwork from this assignment for the class of 2020. Participation in IPE will continue to highlight the importance of intradisciplinary teams to patient care. Written and Oral communication will continue to be emphasized as important skills in the program through the various assignments and group projects.

ESLO – Diverse Perspectives

It has come to the attention of faculty that diverse perspectives may not be adequately covered in the MLS curriculum. Staff have chosen this year to focus on where understanding diverse perspectives may be included. One area identified could be in the new student orientation. Another area that might cover this objective is in IPE. More work needs to be done to develop this. The university defines diverse perspectives as "requiring self awareness, intellectual flexibility, and broad knowledge that enables perception of the world through the eyes of others".

Summary Statement

The Medical Laboratory Science Department continues to review the process of assessment and make reasonable changes in order to mine the data that will give useful information regarding student performance. Faculty are actively involved in the process and are committed to maintaining high standards of performance for their students. Student performance in the program has been stable for many years despite faculty and location changes. Faculty are also committed to making improvements in their own knowledge of laboratory science, teaching processes and presentation of curriculum to keep current and to allow their students to perform to the highest standards. The budget has allowed this commitment to see fruition through support of faculty travel and the purchase of vital program equipment that modernizes student learning. The student experience of the program is a respected element of the performance of the program and will continue to be reviewed in order to provide an excellent source for improvement ideas to individual courses. Student work in individual courses that represent program outcomes has been the most informative change to program assessment and continues to express student achievement across the courses that is reinforced by student performance on outside measures of student competence in externship and on certifying exams.

APPENDIX

1. BOC results Class of 2018
2. Student Exit Survey 2018
3. PDE spreadsheet 2017-2018
4. NAACLS President Report 2019
5. Program Assessment Feedback 2017-2018
6. Assignment Descriptions
 - a. Education Project Rubric
 - b. Safety Exam
 - c. Ethics Project Rubric
 - d. Hematology Practical Exam
 - e. Urinalysis Practical Exam
 - f. SOP project Rubric
 - g. Chem II project Assignment

Board of Certification Program Performance Report

School Code: 036006 Exam Code: MLS Go To Program Performance Report (PPR)

Date Type: EXAM Start Date: 12/1/2018 End Date: 8/30/2019

Program and National Scaled Score Comparisons

First Time Examinees From Your Program:

	BENK	VA	CHEM	HE/M	IMJU	MICR	LO
Program Mean Scaled Scores:	499	544	563	570	477	519	533
University Based Program Mean Scaled Scores:	509	600	611	511	482	505	503
This Cycle Mean Scaled Scores:	507	503	610	511	488	504	508

First Time Examinees From The Total Population This Cycle

Type/Name	Program	University	National
Number of Examinees	46	2236	3186
Number Passing (Percent)	42 (91.30%)	1877 (84%)	2832 (89.04%)
Number Failing (Percent)	4 (8.70%)	359 (16%)	353 (11.06%)
Mean Scaled Score	529	504	504
Standard Deviation	98	107	112
Minimum Scaled Score Achieved	287	100	100
Maximum Scaled Score Achieved	798	894	894

All Examinees this cycle:

Cycle from 12/01/2018	University	National
Number of Examinees	2718	3873
Number Passing (Percent)	2125 (78%)	2953 (76.25%)
Number Failing (Percent)	594 (22%)	920 (23.75%)
Mean Scaled Score	487	496
Standard Deviation	111	116
Minimum Scaled Score Achieved	100	100
Maximum Scaled Score Achieved	894	894

Program Report

(2018-2019) Student Exit Survey

August 22nd 2019, 2:43 pm PDT

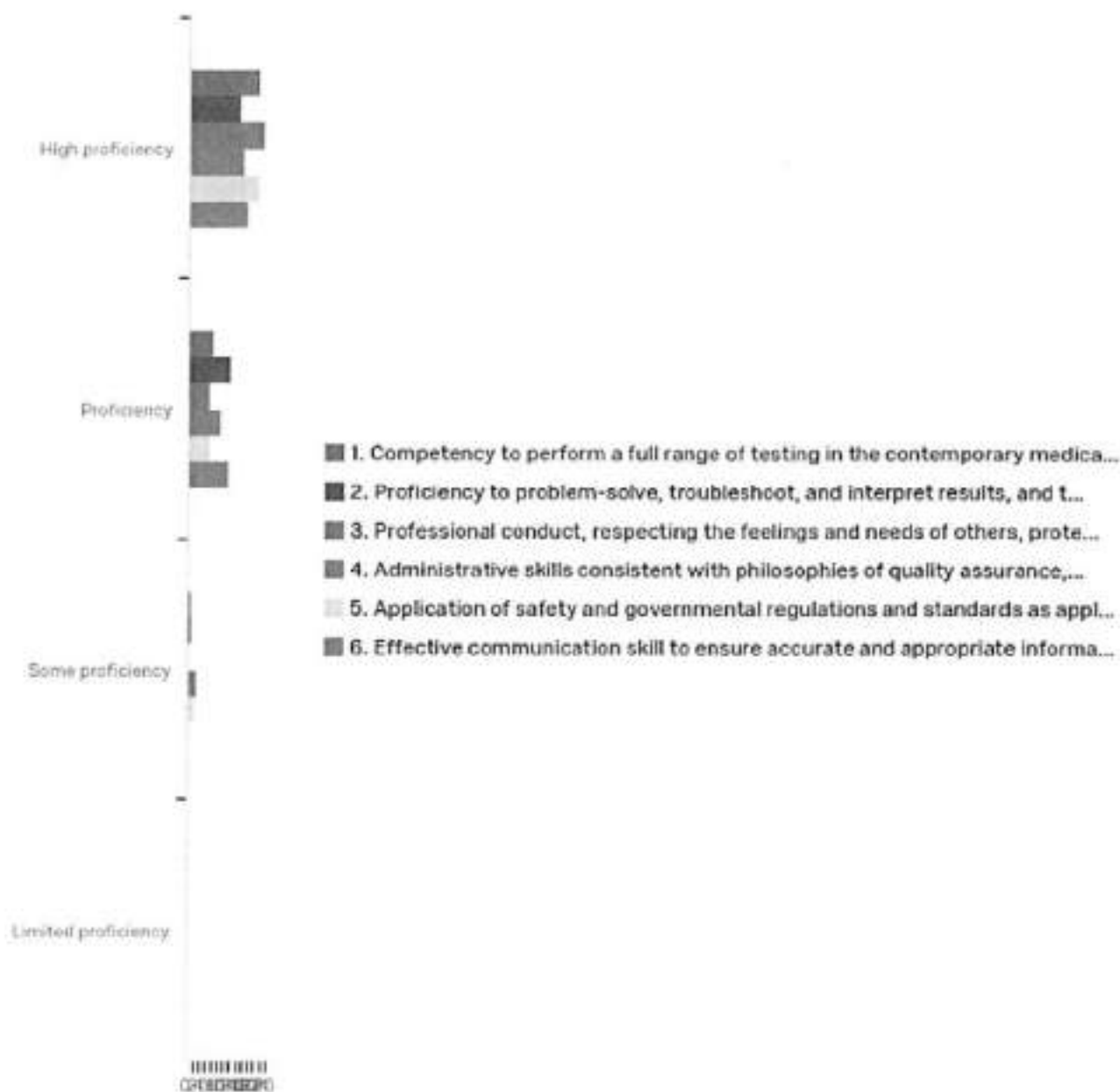
Q ESLO 1 - Oregon Tech Essential Student Learning Outcomes Please rate your proficiency in the following areas.



High proficiency
 Proficiency
 Some proficiency
 Limited proficiency

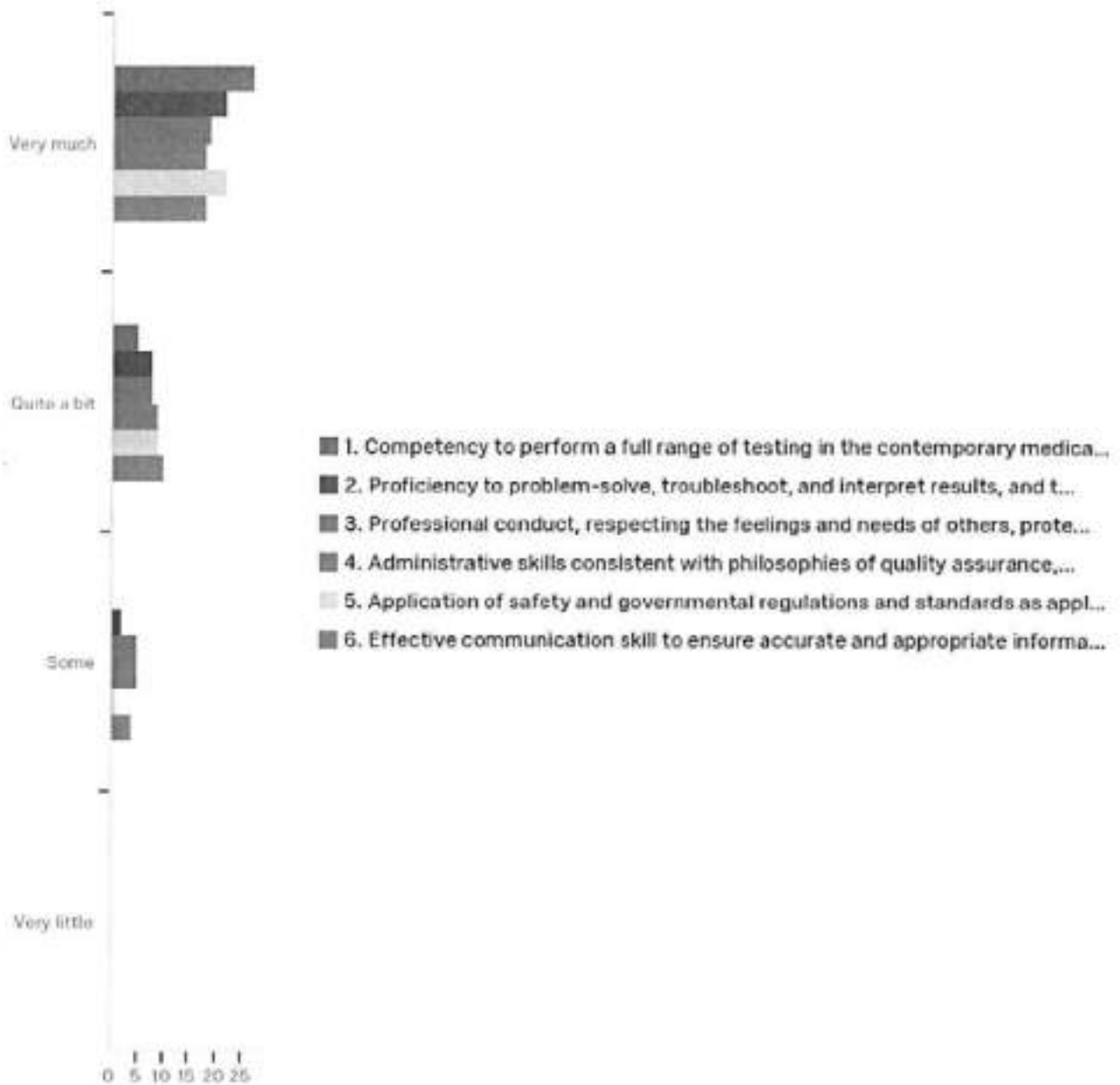
#	Question	High proficiency		Proficiency		Some proficiency		Limited proficiency		Total
1	ESLO 1a. Communication: Writing effectively	63.33%	19	36.67%	11	0.00%	0	0.00%	0	30
2	ESLO 1b. Communication: Speaking effectively	56.67%	17	43.33%	13	0.00%	0	0.00%	0	30
3	ESLO 2. Inquiry & Analysis: Thinking critically and analytically	73.33%	22	26.67%	8	0.00%	0	0.00%	0	30
4	ESLO 3. Ethical Reasoning: Making ethical judgements	73.33%	22	23.33%	7	3.33%	1	0.00%	0	30
5	ESLO 4. Teamwork: Work effectively with groups and teams	66.67%	20	30.00%	9	3.33%	1	0.00%	0	30
6	ESLO 5. Quantitative Literacy: Using quantitative/numerical information to solve problems, evaluate claims, and support decisions	66.67%	20	30.00%	9	3.33%	1	0.00%	0	30
7	ESLO 6. Diverse Perspectives: Understanding of diverse perspectives to improve interactions with others	66.67%	20	26.67%	8	6.67%	2	0.00%	0	30

Q BMLS 1 - Program Student Learning Outcomes for Medical Laboratory Science B.S.
 Please rate your proficiency in the following areas.



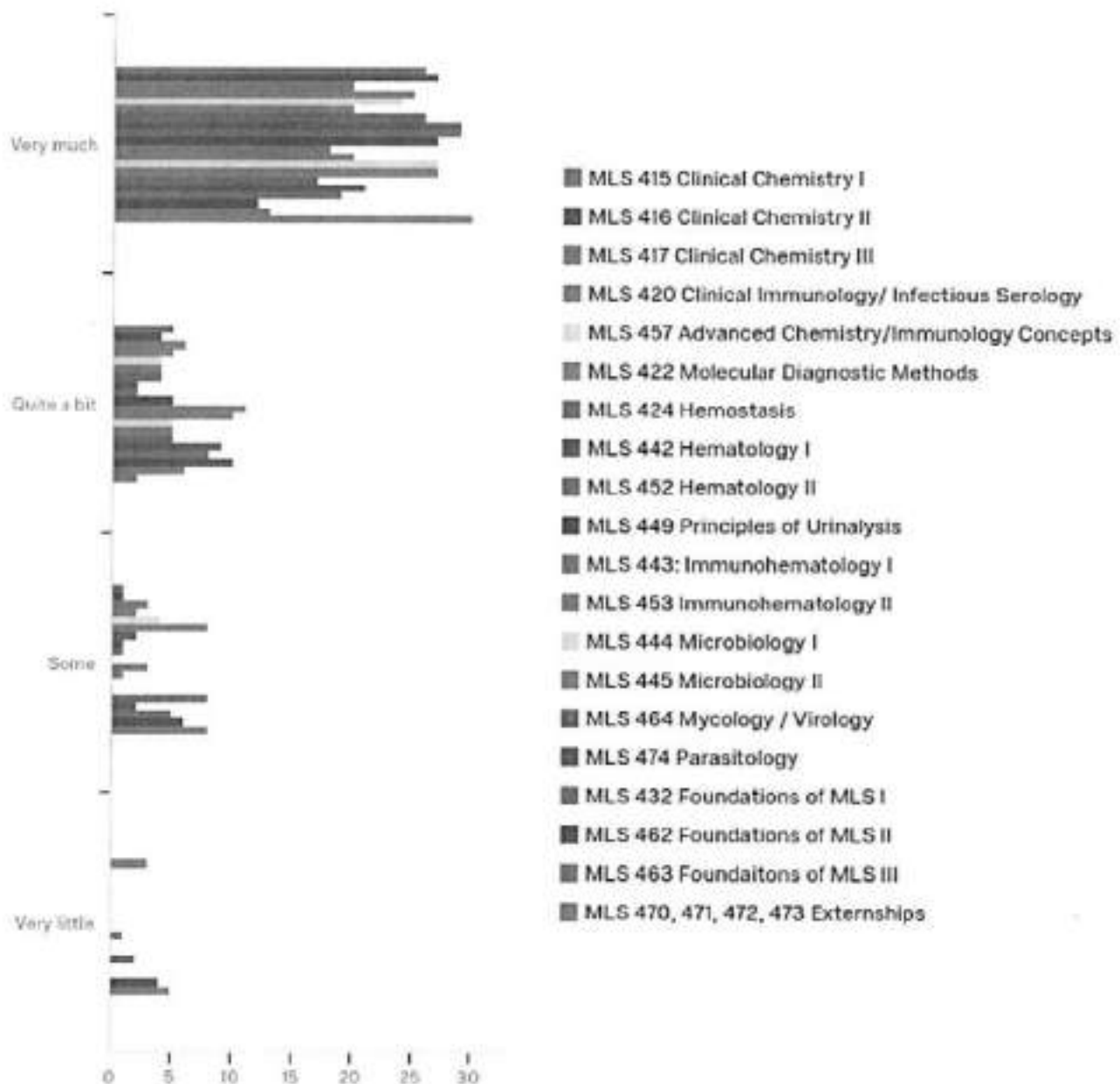
#	Question	High proficiency	Proficiency	Some proficiency	Limited proficiency	Total
1	1. Competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including hematology, hemostasis,	71.88% 23	25.00% 8	3.13% 1	0.00% 0	32

Q BMLS 2 - Program Student Learning Outcomes for Medical Laboratory Science B.S.
How much has your experience at Oregon Tech contributed to your knowledge, skills, and personal development in these areas?



#	Question	Very much	Quite a bit	Some	Very little	Total
1	1. Competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including hematology, hemostasis, chemistry, immunology,	84.38% 27	15.63% 5	0.00% 0	0.00% 0	32

Q BMLS 3 - To what extent did each of the courses listed below contribute to your knowledge of the subject and prepare you to enter the medical lab workforce as a competent, knowledgeable, and skilled professional?



#	Question	Very much	Quite a bit	Some	Very little	Total
1	MLS 415 Clinical Chemistry I	81.25% 26	15.63% 5	3.13% 1	0.00% 0	32
2	MLS 416 Clinical Chemistry II	84.38% 27	12.50% 4	3.13% 1	0.00% 0	32
3	MLS 417 Clinical Chemistry III	62.50% 20	18.75% 6	9.38% 3	9.38% 3	32

Q BMLS 4 - Please describe the the most valuable course you took or describe the most valuable experience you had during your time in the OIT-OHSU Medical Laboratory Science program.

Please describe the the most valuable course you took or describe the most valuable experience you had during your time in the OIT-OHSU Medical Laboratory Science program.

Hematology

I could not say that one course is more valuable than another. I learned a great deal from all the courses; they provided some exposure to all/many of the different parts of a working laboratory. I have seen benefits from each course taken in each of the different rotations of externship. If nothing else, the most valuable experience I had in the program has been the challenge to persevere and overcome difficult situations/tasks with a modicum of grace under pressure. Each course pushed me in one way or another to grow as a person, to learn to problem solve, troubleshoot, and to keep thinking. I will be better able to face the inevitable challenges that come my way because of the tempering I received in the program.

For me, the most valuable course was Microbiology. This is because I intend to work in Micro. All the courses were very beneficial to my learning experience.

Most valuable experience were working with the instructors outside of class. Either seeking help in their office or with the volunteer TA time. The class that I retained the information the best were hematology/hemostasis. The externships were very strong as well.

Every course I took was very valuable and enjoyable. The professors and my cohort was the best thing about my experience. The professors are the best professors I have ever had and it's great to know that each one of them deeply cares about me as a person and in my education.

Urinalysis and blood bank

Hematology was most valuable experience I had. This class was taught in a way that was both easy to understand and also covered a great deal of material. This is not easy to do but Dawn did an amazing job.

Clinical Chemistry with Ryan Brown. Ryan not only taught the content well, he taught us how to have passion for what we do, and his class always made me excited to learn more. I learned a lot, and I feel like it was the most valuable. Hemostasis with Dawn Taylor was my favorite class, because I found the content to be the most interesting and Dawn is an amazing professor.

Every course was valuable, Clinical Chemistry if anything had the most consistently interesting and thought provoking lectures.

Externship to apply info learned in class.

All courses were equally valuable

I really valued my hematology courses. There is an art to knowing how to evaluate clinical significance from a blood smear. Its also so practical. I'm not sure how an online class could teach this subject.

Lab unknowns in Heme and Micro.

I love hemostasis classes during summer. It is hard but it is a very interesting subject to learn about

Externship

The most valuable courses were the actual externship. This was you could actually do real world hands on work. In the classroom settings are great but not as beneficial as being in the field.

The externships were very helpful in helping cement the knowledge that I acquired during the four terms of classes that I took beforehand.

Q BMLS 5 - What course(s) or experience(s) do you think should be added to the Medical Laboratory Science program? Why?

What course(s) or experience(s) do you think should be added to the Medical Laboratory Science program? Why?

Learning about the analyzers would be helpful

Mycology and virology should be two separate courses. Though mycology is more specialized, and many labs send the mycology out, combining it with virology short changes both subjects. Molecular methods could benefit from being a two course series. More and more molecular is being added to labs all the time. Much of molecular I have encountered in the extern experience has been viral...so the potential of expanding virology with molecular focus is there.

Toxicology. In my externship experience there were only two techs in the entire lab trained in toxicology. With our current problems with drug abuse, this would be beneficial training to have.

*More phlebotomy time, it would be good to have more practice. *Some practice for customer service/conflict resolution/escalated situations, for example teach techniques in diffusing situations I think would be useful. Maybe hospitals train employees for this but they are good life skills too.

More experience actually working with laboratory analyzers since so much of the work requires that knowledge.

Cannot think of any.

Simplify Hematology

Anything related to understanding the lab analyzers would be very beneficial. This was the hardest part to get use to in the real job setting.

Maybe a one or so credit class on instrumentation? I felt like it was all shoved into chemistry, and it didn't get enough time. I would have liked to have more experience on the instruments before going into externship, particularly in chemistry.

Taking time late in the program to give us mock lab flow before the externship, so we could get an idea of how the departments operate more in the field, would be beneficial.

Ability to apply info learned to an actual medical lab closer to the time it was actually learned in class rather than a year later. Simulated massive transfusion scenario.

None I can think of

Specimen processing needs to be added. It is a very important part of specimen integrity and has the most risk of error in the lab. I'm not sure why it is not covered well. It should be emphasized in my opinion. I heard on externship that Providence is designing their labs to employ more specimen processors than techs. They plan for techs to be in charge of specimen processors. This subject was not really addressed. I also heard on externship that Legacy plans to stop hiring MLTs. MLS grads need to have a big picture of all the working parts of the lab. Increase Phlebotomy. Increase fungus interaction time. - Do not allow professor R. Brown to directly read his notes in mycology. Require mycology word notes and picture notes to be combined. Increase "how to deal with rude/demeaning people" in Foundations

I do not have any additional course should be added but I think more time should be added to mycology and virology courses

In chemistry biotin should be discussed and it's interference in chem testing.

I see a need for more LIS education. Understanding computer systems and basic coding will help with 90% of the LIS troubleshooting/development I've seen during externship.

Not sure.

Q BMLS 6 - What course(s) or experience(s) do you think should be removed from to the Medical Laboratory Science program? Why?

What course(s) or experience(s) do you think should be removed from to the Medical Laboratory Science program? Why?

None

I feel that foundations could be online course.

I'm not sure that I would remove a course. I can imagine that many people would say one specific Foundations course, or even the entire series; but as much as completing the Foundations III tasks has been stressful due to extern location, I would not remove any of the series. Many people might have found the topics/tasks boring, tedious, or a drag...but I think that is short-sighted. No, we did not delve into any one topic at any great length, but the topics we covered are incredibly relevant. I know that some day, the things we learned in Foundations will be of use. I will benefit in my long term career for having even a small familiarity with the topics contained therein.

Foundations externship. I found it to be mostly busy work that used up valuable time I could have spent studying. Foundations could be combined or some other topics added to it. I appreciated having a light workload class but it would be good to have some more application of the information even if it is just during class time. The professionals that were brought into to talk to and answer questions was fantastic, more time would be good. The speed date of clinical sites was also great more time would be nice there too.

None.

None

Lab math. This component of the foundations class was not only difficult to lean but also its not utilized much in the lab. It turns out that in a real job setting people doing math problems tends to lead to mistakes so nobody is doing any calculations of Normality or converting temps from F to C.

I think that foundations II was overall very unhelpful. It was nice to do a bit of resume stuff, and although I didn't find the managerial content helpful, it was good to have a brief overview. But overall, every time I went to lab I felt like we barely did anything and all I could think of was how much studying I had for other classes. I think that the class would be much better as lecture only, or even online.

None at this time.

chem 3, mycology, foundations 3, seminar, learning styles. These courses felt disjointed and hard to follow or did not offer relevant applicable info.

I didn't find the part of foundations about lab management particularly interesting or useful.

Maybe the phlebotomy class should be an extra credit (or resume booster) all-day three-six week weekend class. I think it made some people very uncomfortable. It's not really expected of MLS hire. If the employer requires it, they learn on the job or get sent to a 3-5 week class.

Foundations 3

I think all of courses we have now are important and should be kept

Foundations II and III seemed to mostly be a lot of busy work rather than helpful/useful course work. This is especially true of Foundations III. I did not find doing any of the required tasks useful in my learning experience and just felt more overwhelmed tried to get everything done.

Foundations of MLS III - didn't really see a point of this "course", and didn't gain anything from it. I would have asked to shadow a pathologist and the point of care coordinator whether I had a checklist or not, so having this

Q BMLS 7 - The Medical Laboratory Science program's curriculum (including your externship) is designed so that graduates gain knowledge and skills to perform a broad range to testing and develop the professional attributes of a MLS professional. Please indicate the gains you made in knowledge, skill, and professionalism by selecting the rating that best describes your competency at graduation for the skills and activities listed.

<p>I exceed the competency standard for this skill or activity; I require no assistance to perform this activity or skill.</p>	
<p>I meet the competency expectation for this skill or activity; I am confident in performing this skill or activity with minimal supervision.</p>	<input checked="" type="checkbox"/> Collect and safely handle samples for analysis <input checked="" type="checkbox"/> Perform accurate laboratory testing <input checked="" type="checkbox"/> Evaluate and interpret laboratory test data <input checked="" type="checkbox"/> Identify problems and take corrective action <input type="checkbox"/> Apply quality assurance principles and methods to monitor procedures, equip... <input checked="" type="checkbox"/> Operate equipment properly and perform preventive maintenance and repairs <input checked="" type="checkbox"/> Comply with established laboratory safety regulations <input checked="" type="checkbox"/> Use laboratory computers and technology effectively <input checked="" type="checkbox"/> Evaluate the efficacy of new procedures and instrumentation for a given set... <input checked="" type="checkbox"/> Demonstrate ethical behavior and maintain confidentiality of patient result... <input checked="" type="checkbox"/> Interact professionally with patients and other personnel <input checked="" type="checkbox"/> Apply principles of educational methodology <input type="checkbox"/> Possess relevant experience in medical lab management and operations and res...
<p>I meet the minimal competency expectation for this skill or activity with supervision</p>	
<p>I do not meet the competency expectation for this skill or activity</p>	

	instrumentation for a given setting									
10	Demonstrate ethical behavior and maintain confidentiality of patient results	83.87%	26	12.90%	4	3.23%	1	0.00%	0	31
11	Interact professionally with patients and other personnel	77.42%	24	19.35%	6	3.23%	1	0.00%	0	31
12	Apply principles of educational methodology	54.84%	17	41.94%	13	3.23%	1	0.00%	0	31
13	Possess relevant experience in medical lab managment and operations and research design and practice	45.16%	14	32.26%	10	22.58%	7	0.00%	0	31

Q BMLS 9 - Please provide any additional comments or information that you believe will help the MLS program.

Please provide any additional comments or information that you believe will help the MLS program.

The MLS program is rigorous and demanding. It is not a program for someone that is not willing to step up to the challenge or is unable to rise to the occasion. Despite the stress and long hours of studying and sleepless nights, every moment was worth it. I am here, days away from graduating, and I look back at the program and how far I have come, how much I have learned. These 15 months have transformed my future. I am now going to be entering into a career that not only will I love, but that has the huge potential for being ever-stimulating and full of non-stop learning.

It was an intensive program but the staff are great. The labs are well thought out and provide a good base.

All professors are amazing but Caroline taught me the most. Her teaching is easy to understand and she really helped everyone feel comfortable and confident.

This is an excellent program, and I'm honored to have been a part of it.

More experiences in an actual medical lab closer to when the topic is learned in class setting. Not charging students tuition when on externship because there is little to no instructor interaction and is nearly impossible to relocate, attend "work" 5 days a week, and survive independently without an income on top of paying thousands of dollars, despite dedication and competence of the student.

Need childcare at Wilsonville campus. Maybe a discount from a nearby facility? Seriously no family resources.

Externship paperwork needs to be updated. Some areas are very dated and others repeat (for example each section has a safety training that can be just in foundations only so you don't bug the safety officer to sign you off on every section over and over again)

As a person who never held a professional job before I think it would have been helpful to walk through an online application. When I started applying for work during my externship it was somewhat overwhelming. Most of the time the application didn't have a location to say that I would be taking the exam soon, so it felt like they would see the "doesn't have certification" and immediately throw out the application.

Q BMLS 11 - Are you currently a member of ASCLS, ASCP, or any other medical laboratory professional organization? If so, please indicate which one(s).

Are you currently a member of ASCLS, ASCP, or any other medical laboratory professional organization? If so, please indicate which one(s).

ASCP

ASCP

ASCP (it doesn't charge students to join). I will likely join other organizations upon employment and funds to pay for membership.

ASCP

ASCP

ASCP and ASCLS

ASCP

ASCP

ASCLS

Ascp

I will be signing up soon for ASCLS

ASCLS

Yes, ASCP

ASCP

Yes, the ASCP.

No

ASCP

ASCP

I was signed up as a member of ASCLS.

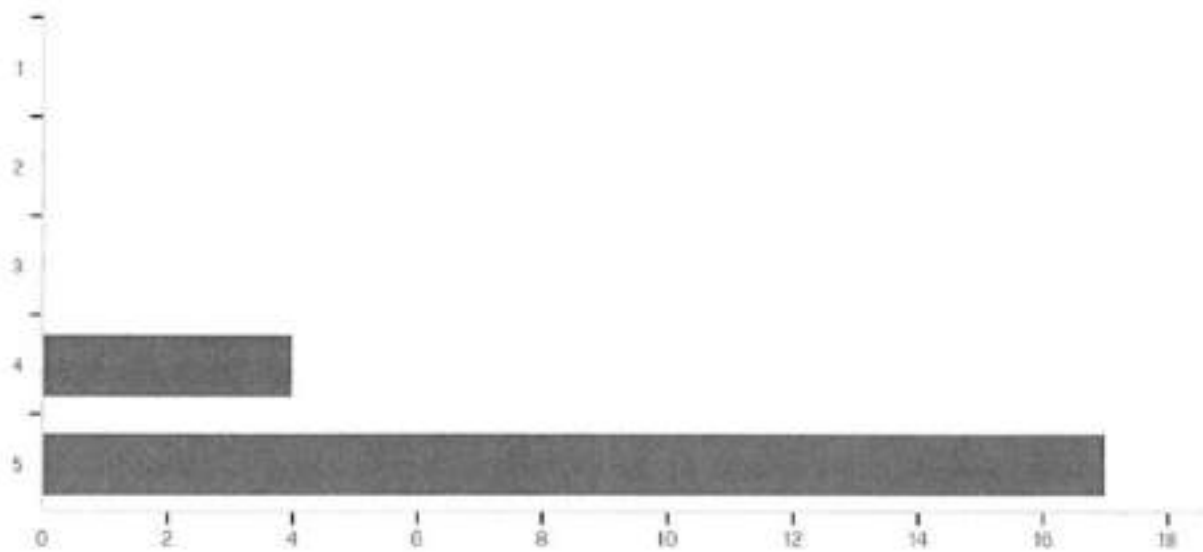
ASCP

n/a

ASCP

ASCP

Q BMLS 14 - What is your overall rating of the quality of education you received at Oregon Tech? (Please adjust grade on the sliding scale)



#	Answer	%	Count
1	1	0.00%	0
2	2	0.00%	0
3	3	0.00%	0
4	4	19.05%	4
5	5	80.95%	17
	Total	100%	21

Account #	% Salary Percent	Accounting	Chemistry	Education	Environmental	SA	SD	SI	SLA
018-22-2365	0%					0	0	0	
018-24-3255	0%					0	0	0	
019-22-4275	0%					0	0	0	
019-23-5368	0%					0	0	0	
019-24-5378	0%					0	0	0	
019-22-4088	0%					0	0	0	
019-22-3435	0%					0	0	0	
018-24-4334	0%					0	0	0	
018-22-4383	0%					0	0	0	
018-24-3373	0%					0	0	0	
018-22-8715	0%					0	0	0	
018-24-2641	0%					0	0	0	
019-14-9633	0%					0	0	0	
019-22-8587	NA					0	0	0	
019-24-6564	0%					0	0	0	
019-24-3777	0%					0	0	0	
018-22-5365	0%					0	0	0	
018-24-2344	0%					0	0	0	
019-24-4438	0%					0	0	0	
018-24-3781	0%					0	0	0	
018-21-2645	0%					0	0	0	
018-24-2622	0%					0	0	0	
019-21-7641	0%					0	0	0	
019-21-6898	0%					0	0	0	
019-21-5400	0%					0	0	0	
019-22-2867	0%					0	0	0	
018-24-3108	0%					0	0	0	
018-21-7753	0%					0	0	0	
018-24-4388	0%					0	0	0	
018-24-4388	0%					0	0	0	
018-24-8733	0%					0	0	0	
018-24-3728	0%					0	0	0	
018-24-3112	0%					0	0	0	
018-24-4484	0%					0	0	0	
018-24-7774	0%					0	0	0	
018-03-3623	0%					0	0	0	
018-24-3448	0%					0	0	0	
018-24-3423	0%					0	0	0	
018-20-8244	0%					0	0	0	
018-22-8926	0%					0	0	0	
018-24-8587	0%					0	0	0	
018-24-3437	0%					0	0	0	
018-24-2877	0%					0	0	0	
018-24-2581	0%					0	0	0	
018-17-3248	0%					0	0	0	
018-24-2875	0%					0	0	0	
018-22-8738	0%					0	0	0	
Totals	0%					0	0	0	0

Application of safety and governmental regulations and standards as applied to work of laboratory
 specific to measured by score of Extension/EE performance on score **Item 01** follow
 laboratory institutional safety policies & grades on the safety equipment in Foundations I
 Extension: 0% receive a score of 0.
 Extension: 0% receive a grade of 0 or better.

Section	Section Number	Prerequisite	Corequisite	Max. Credits	Transferability	SI	ST	SS	SW
914-23-1248	914		A	2					
914-23-1255	914			2					
914-23-1272	914			2					
914-23-2308	914			2					
914-24-1470	914			2					
914-24-1496	914			2					
914-24-1445	914			2					
914-24-1426	914			2					
914-24-1401	914			2					
914-24-1373	914			2					
914-24-1345	914			2					
914-24-1347	914			2					
914-24-1311	914			2					
914-24-1287	914			2					
914-24-1286	914			2					
914-24-1277	914			2					
914-24-1268	914			2					
914-24-1244	914			2					
914-24-1200	914			2					
914-24-1164	914			2					
914-24-1145	914			2					
914-24-1122	914			2					
914-24-1091	914			2					
914-24-1078	914			2					
914-24-1050	914			2					
914-24-1007	914			2					
914-24-1118	914			2					
914-24-1113	914			2					
914-24-1100	914			2					
914-24-1031	914			2					
914-24-1130	914			2					
914-24-1112	914			2					
914-24-1074	914			2					
914-24-1074	914			2					
914-24-1072	914			2					
914-24-1040	914			2					
914-24-1026	914			2					
914-24-1044	914			2					
914-24-1036	914			2					
914-24-1044	914			2					
914-24-1036	914			2					
914-24-1067	914			2					
914-24-1437	914			2					
914-24-1277	914			2					
914-24-1201	914			2					
914-24-1240	914			2					
914-24-1215	914			2					
914-24-1136	914			2					
Totals									

Prerequisite: 914-24-1074 (with prerequisite of quality standard, minimum quality measurement, minimum objective and/or content measurement.) Minimum by course of Learning Objectives performance on prior 914-24-1074 performance appropriate to the quality standard. Prerequisite 914-24-1074 is part of the Learning Objectives Foundation. It was:

914-24-1074 requires a grade of C.

914-24-1074 requires a grade of B or better.

Student #	IS-Track Project #	Research Dept	Faculty	Year/College	Journal/Conference	Y1	Y2	Y3	Y4	Y5
018-23-255	001		1			0	1	0		0
018-23-1295	001		1			0	1	0		0
018-23-1272	002		1			0	1	0		0
018-23-2522	000		2			0	1	0		0
018-24-1570	001		2			0	1	0		0
018-22-0765	000		2			0	1	0		0
018-23-1613	000		2			0	1	0		0
018-24-4526	005		2			0	1	0		0
018-17-4161	000		2			0	1	0		0
018-23-2273	005		2			0	1	0		0
018-22-0715	004		2			0	1	0		0
018-24-2647	001		2			0	1	0		0
018-24-2511	001		2			0	1	0		0
018-22-0587	004		2			0	1	0		0
018-24-0584	001		2			0	1	0		0
018-24-3277	005		2			0	1	0		0
018-23-5185	000		2			0	1	0		0
018-24-2344	001		2			0	1	0		0
018-24-4490	000		2			0	1	0		0
018-24-1764	000		2			0	1	0		0
018-21-3545	000		2			1	1	0		0
018-24-3611	005		2			0	1	0		0
018-21-7941	000		2			0	1	0		0
018-21-6898	002		2			0	1	0		0
018-21-5498	000		2			0	1	0		0
018-22-2847	001		2			0	1	0		0
018-20-1118	001		2			0	1	0		0
018-21-7713	005		2			0	1	0		0
018-22-4188	000		2			0	1	0		0
018-20-9716	001		2			0	1	0		0
018-24-1728	001		2			0	1	0		0
018-24-1113	001		2			0	1	0		0
018-24-4494	002		2			0	1	0		0
018-21-2724	002		2			0	1	0		0
018-01-3623	001		2			0	1	0		0
018-23-1449	001		2			0	1	0		0
018-21-3428	001		2			0	1	0		0
018-20-8294	001		2			0	1	0		0
018-23-8936	000		2			0	1	0		0
018-14-0567	000		2			0	1	0		0
018-14-3417	001		2			0	1	0		0
018-14-2077	001		2			0	1	0		0
018-14-2591	001		2			0	1	0		0
018-17-3240	001		2			0	1	0		0
018-14-2013	001		2			0	1	0		0
018-11-0738	001		2			0	1	0		0
Totals						0	141	0	0	0

Professional and ethical conduct, including compliance with research regulations, respecting the feelings and needs of others, protecting the confidence of patient information and not allowing personal concerns and biases to interfere with the welfare of patients is measured by scores of 0-5 on the following performance scale: **0=Not at all**, **1=Minimal**, **2=Some**, **3=Moderate**, **4=Good**, **5=Excellent**.
 0=Not at all
 1=Minimal
 2=Some
 3=Moderate
 4=Good
 5=Excellent

03/2017	To	From	Account	Quantity	Unit	Amount	01	02	03	04	05
03-21-198	37.4										
03-22-197	37.5										
03-23-197	37.9										
03-24-198	37.9										
03-25-197	37.9										
03-26-197	37.9										
03-27-197	37.9										
03-28-197	37.9										
03-29-197	37.9										
03-30-197	37.9										
03-31-197	37.9										
03-32-197	37.9										
03-33-197	37.9										
03-34-197	37.9										
03-35-197	37.9										
03-36-197	37.9										
03-37-197	37.9										
03-38-197	37.9										
03-39-197	37.9										
03-40-197	37.9										
03-41-197	37.9										
03-42-197	37.9										
03-43-197	37.9										
03-44-197	37.9										
03-45-197	37.9										
03-46-197	37.9										
03-47-197	37.9										
03-48-197	37.9										
03-49-197	37.9										
03-50-197	37.9										
03-51-197	37.9										
03-52-197	37.9										
03-53-197	37.9										
03-54-197	37.9										
03-55-197	37.9										
03-56-197	37.9										
03-57-197	37.9										
03-58-197	37.9										
03-59-197	37.9										
03-60-197	37.9										
03-61-197	37.9										
03-62-197	37.9										
03-63-197	37.9										
03-64-197	37.9										
03-65-197	37.9										
03-66-197	37.9										
03-67-197	37.9										
03-68-197	37.9										
03-69-197	37.9										
03-70-197	37.9										
03-71-197	37.9										
03-72-197	37.9										
03-73-197	37.9										
03-74-197	37.9										
03-75-197	37.9										
03-76-197	37.9										
03-77-197	37.9										
03-78-197	37.9										
03-79-197	37.9										
03-80-197	37.9										
03-81-197	37.9										
03-82-197	37.9										
03-83-197	37.9										
03-84-197	37.9										
03-85-197	37.9										
03-86-197	37.9										
03-87-197	37.9										
03-88-197	37.9										
03-89-197	37.9										
03-90-197	37.9										
03-91-197	37.9										
03-92-197	37.9										
03-93-197	37.9										
03-94-197	37.9										
03-95-197	37.9										
03-96-197	37.9										
03-97-197	37.9										
03-98-197	37.9										
03-99-197	37.9										
03-100-197	37.9										
TOTAL											
		81.9%	88.00%								

Expenditures to perform a full range of testing in the laboratory, including but not limited to: chemistry, hematology, clinical microbiology, immunology, transfusion medicine, and other specialty services. The laboratory is accredited by the College of American Pathologists (CAP) and the National Accreditation for Laboratory Testing (NABL). All tests are performed in accordance with the CAP and NABL requirements.

The total 87% represents a total of 2.00 units.

The total 87% represents a total of 2.00 units.

Student Name	Hospital System	Date entered	Quote	
1	Santiam	12-Dec		41 responded employed by 7/1
2	Clinical Labs of Howell	26-Nov		
3	Prov. Medford	14-Nov		0.80434703 \$ not in Oregon
4	Santiam, Bend/Cl, MN	2-Jan		respondent salaries
5	CO	26-Nov		\$ 51,000
6	Sky Lakes	20-Nov		\$ 80,000 0.891304
7	mercy	16-Jan		\$ 58,000
8	Central legacy	20-Nov		\$ 51,000
9	legacy	18-Jun	"Her inquisitive nature challenged us to explain why we do things the way we do. She even found a process flaw in one of our procedures that led me to revise the procedure."	\$ 51,000
10	Salem Hospital	6-Dec		\$ 80,000
11			Have had contact	75732.8
12	WSU veterinarian hospital	2/4/2019		\$6222.4
13	legacy	Jan-10		\$ 58,010 average
14	Physician's Med Ctr	2-Jan		\$ 57,114 median
15	Kumcivan Medical Center	Feb-19		
16	Salem Clinic	Feb-19	"Many days we were short staffed, but we all appreciated the support she provided to our department."	
17	OHSU	28-Nov		
18	St Mary's	2-Jan	"With the right mentor, the transfusion service might just be the best fit for her temperament."	
19	St. Mary's	2-Jan		
20	vancouver clinic	14-Nov		
21	rainbow	12-Dec		
22	salem clinic	12-Dec		
23	same grants pass	20-Nov		
24			YSA issues	
25	providence- Newburg	3-Dec		
26	Providence- PDX	2-Jan	"I love how she reads procedures before performing a test or task, very efficient."	
27	legacy Central	1-May		
28	Adventist	Jun-19	"Our department is short staffed but Christina made it easy by being motivated, engaged and helpful."	
29	peace health	16-Nov	"She often jumps in and helps when other techs are busy."	
30	ALBANY SAMARITAN	18-Nov	"She even helped to clarify our own SOP for how/when to use albumin for slides with smudge cells."	
31	OHSU- Flow Lab	17-Apr	"I really missed him when he moved on to his next department."	
32	good sam - conalls	16-Jan	"She was doing our routine morning startup with very little supervision."	
33	lebanon	16-Jan		
34	OHSU	Feb-19		95.88
35	Prov. Hoodriver	14-Nov	"She gets the consequences of not performing well and goes beyond just doing a test to ensure she does it well."	
36	Salem Hospital	14-Nov		
37			"Evan has a higher level of understanding in the blood bank than any of the previous MLS students I have observed in other programs. Evan quickly picked up information and moved through the blood bank department as well as someone that has been a MLS for years."	
38	sky lakes	26-Nov		
39	Providence St V	May-10		
40	salem	26-Mar		
41			"She helps to monitor supplies in other departments when she is caught up with tasks. She is always looking for work to do and wants to learn more."	
42	Sky Lakes	Jan-28		
43	Providence	Aug-19		
44	salem	25-Mar		
45	lebanon	16-Nov		
46	Meridian Park	1/16/2019		
	VA - PDX	12/12/2018	"Her turnaround times are above average for routine work."	

placement 0.956521736

OIT * OHSU MLS Professional Development Evaluation

Course: _____ Term: _____ Year: _____

Student Name: _____

Objective: The primary objective of this assessment is to ensure that each student completes the program with a level of technical competency and demonstrates the behavioral standards of the profession.

Instructions: The student will be evaluated after each of the major student laboratory practicums.

Evaluator: Select the description which most closely matches the student's performance.

- A score of 3 - the student exceeds expectations of competency for a MLS student entering the clinical externship.
- A score of 2 - the student meets expectations of competency for a MLS student entering the clinical externship.
- A score of 1 - minimal competency has not been met. **Scores of 1 require additional comments documenting why the score was chosen. Place comments in the Evaluator Comments section.**

Knowledge and Skills

Students are expected to receive scores of 2's and 3's. If a student receives a score of 1 in this section it is considered unsatisfactory performance and may be referred to the Progress and Promotions Committee at the discretion of the course instructor(s).

Exceeds Expectations	Meets Expectations	Below Expectations	Not Applicable or Not Observed
Circle score of 3	Circle score of 2	Circle score of 1	Circle NA

Application of Knowledge	1.	Readily able to answer theory and practical questions with little prompting	3	2	1	NA
	2.	Applies previous knowledge to new procedures with minimal instruction	3	2	1	NA
Laboratory Performance	3.	Follows laboratory and institutional safety policies	2	1	NA	
	4.	Follows written procedures / verbal instruction	2	1	NA	
	5.	Uses proper laboratory technique	2	1	NA	
	6.	Makes minimal errors	3	2	1	NA
	7.	Performs appropriate quality control / quality assurance procedures	2	1	NA	
	8.	Maintains work quality and quantity under stress	3	2	1	NA
	9.	Able to work independently; requires minimal supervision	3	2	1	NA
Laboratory Results	10.	Obtains accurate and precise results	3	2	1	NA
	11.	Records completely, clearly and accurately	2	1	NA	
Utilization of Time	12.	Reasonable pace of work; able to keep up with workflow	3	2	1	NA
	13.	Utilizes time effectively	2	1	NA	
	14.	Usually completes work load or assignments in normal amount of time	2	1	NA	
Organization	15.	Organizes material and work	2	1	NA	
	16.	Establishes priorities	3	2	1	NA
Problem Solving Skills	17.	Recognizes errors in technique, results and/ or instrument malfunction	3	2	1	NA
	18.	Shows logical thinking and resourcefulness in dealing with problems	3	2	1	NA
	19.	Determines course of action after careful analysis of all available data	3	2	1	NA
	20.	Perseveres, reluctant to abandon a problem without resolution	3	2	1	NA

Student Name: _____

Evaluator Comments

Areas to work on:

Signature of Evaluator

(Date)

Student Comments: (if desired, please use additional paper if needed)

I have reviewed this evaluation: _____

Signature of Student

(Date)

THE NAACLS NEWS

"YOUR HOME BASE FOR ALL NAACLS ANNOUNCEMENTS, NEWS AND SPECIAL FEATURES"

March 29, 2019 President's Report

By Bill Hunt, MBA, MLS(ASCP)^{CM}

Greetings! Now that we are leaving winter behind and moving into spring it's time for some updates of the activities at NAACLS. Of the 614 programs that are Approved and Accredited by NAACLS, there are 80 new program directors which equates to a 13% turnover. Welcome aboard!

This turnover is bringing multiple issues to the fore. As many program directors move into retirement, NAACLS is in need of volunteers as Self-Study Reviewers and Site Visitors. The recruitment of new volunteers is being led by Mark Spence, the Program Approval Coordinator and Volunteer Services Manager. If you are not currently a volunteer please go to the NAACLS website [HTTPS://NAACLS.ORG/VOLUNTEERS/SIGN-UP-\(1\).ASPX](https://naacpls.org/volunteers/sign-up-(1).aspx) and fill in the form. It is the goal of NAACLS to respond and try to utilize those who fill out the application. One of the benefits of volunteering is learning how others have created their top notch programs, which are accredited or approved by NAACLS.

NAACLS continues to offer timely workshops and to plan for new ones based on frequently asked questions including the recent workshop at the Clinical Laboratory Educators Conference (CLEC), "The Secrets to a Super Self-Study." The NAACLS booth at CLEC was a great success. Not only did it allow us to recruit new volunteers, the questions asked showed us of the need to support the new and current program directors. The next NAACLS workshop will be held on November 8, 2019 in Chicago. It is aimed at new program directors, experienced program directors with programs scheduled for review, and new volunteers to assist in their acclimation to the accreditation and approval processes. Information on this workshop will be featured on the NAACLS website (WWW.NAACLS.ORG) after May 15th.

The 2018 annual survey preliminary findings continue to show that NAACLS programs do well in meeting the required benchmarks of Certification Rate of 75%; Graduation Rate of 70%, and Graduation Placement Rate of 70%. Preliminary findings for 2018 show that the Certification Rate is 88%; Graduation Rate is 95%, and Graduation Placement Rate is 96%. For all those helping to mold the future generation of laboratory professionals, thank you for doing such a great job.

The expanded Doctoral Review Committee has taken on a yeoman role in 2018 by completing a Standards Revisions, which were adopted by the NAACLS board in September 2018. The changes implemented streamlined the initial accreditation process. In addition, the Doctoral Standards Compliance Guide, Doctoral Self-Study Template, and Doctoral Self-Study Review Form have all been

Program Assessment Report Feedback

2017-2018 Assessment Report

Program: B.S. Medical Laboratory Science

Assessment Coordinator: Rachelle Barrett

Rubric Measure	Score (Out of 4)
✓ Program mission and educational objectives	4
✓ Outcomes: Clarity	4
✓ Outcomes: Student-centered orientation	4
✓ Outcomes aligned with mission/industry/student success	4
✗ Outcomes mapped to course/learning experiences	3
Current year's plan	4
Multi-year cycle plan	4
Valid relationship between outcomes and assignments	4
Valid relationship between outcomes and rubric	4
Types of measures: 2 direct, 1 indirect	4
Alignment of assessment across sites/modes	4
Specification of desired results for objectives	3
Data collection and research design	3
Reliability evidence	2
Presentation of results	3
History of results	4
Document how results are shared with faculty/stakeholders	3
Interpretation of results	3
✗ Closing the loop	2
Weaknesses result in action plans	2
Action plans are linked to assessment findings	2
Plans for improvement of assessment	2
Accountability on improvement	2
Planning/budgeting alignment	1

Discuss in Action Plan/changes
Discuss lack of budget

Action Plan

Feedback for Program

- Just a procedural note: In future years, submission of the original electronic documents, rather than a scan, would greatly improve legibility of the assessment report.
- You have a wonderful narrative outlining – and justifying as professionally relevant – your program outcomes, with clear evidence of recent and ongoing program-level discussion on this topic!
- Fantastic curriculum map as well. Also consider mapping and including how the institutional **ESLO's** are exhibited in and map onto your programmatic courses (or your existing outcomes).
- Love that you've included your assignments and rubrics as a way of both demonstrating that you have valid ways of assessing your outcomes, as well as to help ensure continuity in assessment practice!
- To track how curricular changes and actions have connected with student performance, you might consider annotating your history table to indicate where improvement activity occurred in response to assessment.
- Your programmatic discussion of assessment results and resulting activity is excellent. For clarity, you might consider breaking down your reflection more discretely by each particular outcome, where relevant, and providing a bit more detail on curricular and course changes connected with assessment findings, together with detail providing accountability around actions (what changes will be implemented? In what course? By whom? On what timeline?).

Conclusion

Foundations II Educational Methods Project

Learning Goals addressed in this project. A student will:

1. Learn the key concepts involved in basic educational methodology.
 - Goals and Objectives
 - Teaching Strategies
 - Evaluating Performance
2. Work as a team.
3. Design an entire learning module.
4. Develop a student performance evaluation (assessment) methodology.

MLS student groups will be expected to design and document an entire learning module. This will include the following:

- Determine audience or intended learners
- Determine time needed for instruction
- Goals
- Learning Objectives
- Method of Instruction (including any PowerPoints, handouts, procedures, etc. that are used).
- Student Evaluation or Assessment Process

The possible topics include:

- Point of Care Testing (POCT)
- Continuing Education Experience – any topic (CE)
- New Employee Training in Urinalysis (UA)
- STEM High School Course – MLS 107 – Medical Detectives
- Others

Project specifics:

- Entire learning experience developed should take approximately 3 - 5 hours
- Goals: Develop a minimum of 6 Goals.
- Objectives: Develop a minimum of
 - 9 cognitive objectives
 - 4 affective objectives
 - 6 psychomotor objectives (if appropriate)
 - Make sure to include some upper taxonomy level objectives.
- Method of Instruction – Develop at least one method of instruction to meet learning objectives
- Student Evaluation and Assessment- Develop at least one process to evaluate students' knowledge and skills following instruction **AND** one method for student assessment of their educational experience.

Teaching Presentation Rubric:

Names: _____ Topic: _____ Date: _____

Criteria	Exceeds Expectations (Excellent) 5 points	Meets Expectations (Satisfactory) 4 points	Below Expectations (Fair or Poor) 0-2 points
Knowledge of Subject Matter	Demonstrates masterful knowledge of the subject matter.	Demonstrates adequate/ average knowledge of the subject matter.	Demonstrates below average knowledge of the subject matter.
Goals	Appropriately identifies and thoroughly describes important and meaningful learning goals.	Generally identifies and describes learning goals with some explanation.	Identifies and describes learning goals that are vague, trivial, or unessential
Objectives	Objectives are measurable and use appropriate verbs. They include specific information about what the student will be able to do, how well, how many, to what degree. Objectives reflect high levels of cognition according to Bloom's Taxonomy where appropriate.	Objectives are too general and don't always use appropriate verbs. They don't always include specific information on what the student will be able to do, how well, how many, to what degree. Many of the objectives use only low levels of cognition according to Bloom's Taxonomy.	Objective are not measurable. They use poor verbs and they don't describe what the student will be able to do. Many of the objectives use only low levels of cognition according to Bloom's Taxonomy.
Method of Instruction	Instructional activities are creative, interesting and engaging. They are appropriate for subject matter and knowledge level of the learner. They follow a logical sequence. They are do-able... They meet any time and resource constraints.	Instructional activities are appropriate for subject matter and knowledge level of the learner. They follow a somewhat logical sequence. They are do-able... They meet any time and resource constraints.	Instructional activities are inappropriate for subject matter and knowledge level of the learner. They do not follow a logical sequence. They are not do-able... They do not meet any time and resource constraints.
Student Evaluation Process	Evaluation process is of superior quality and is designed to best measure the knowledge and skills found in the learning objectives. It is accompanied by clear criteria or rubric to determine student learning.	Evaluation process is of adequate quality and is appropriate to measure the knowledge and skills found in the learning objectives. It is accompanied by somewhat clear criteria or rubric to determine student learning.	Evaluation process provides an unclear, insufficient measure of the knowledge and skills found in the learning objectives. It is accompanied by minimal criteria or rubric to determine student learning.
Assessment of Educational Experience	Assessment is of superior quality and is designed to best measure the worth of the educational experience.	Assessment is of adequate quality and is appropriate to measure the worth of the educational experience.	Assessment is designed to only minimally identify the worth of the educational experience.

Total Points: _____ = _____ % Comments: _____

"Create an exam" project (15%)

The 1st exam of the semester will be a "create an exam" project in which students may partner up (2-4 students) to create a 30-50 question exam. The exam must consist of

- 50-75% multiple-choice questions
- 25-50% short answer/matching/essay questions
- The exam must include an answer key with the correct answers.
- The exam, if taken by a student, should take approximately 1-2 hours
- The exam questions and the exam key must be typed
- The exam must include questions pertaining to the following material:

Laboratory Safety-

- Safety standards and appropriate workplace practices
- Universal and standard precautions
- Prevention of workplace infections, infection disease transmission
- Proper type and use of personal protective equipment
- Safe work practices for infection control
- Hand washing, work area disinfection
- Bloodborne and airborne pathogens
- Biohazard waste and sharps handling and disposal
- Chemical, electrical, and fire safety
- Chemical fume hood and biological safety cabinet use,
- Laboratory reagent and chemical labeling requirements
- Elements of a chemical hygiene plan
- Use of Material Safety Data Sheets (MSDS) and CFR documentation

Microscopy-

- Fundamentals of microscopy
- Parts of a microscope
- Focusing a microscope
- Calculating magnification

The complexity of the exam questions should follow the accepted ASCP Board of Certification criterion-referenced examination model, which consists of three interrelated taxonomy levels: recall, interpretive skills and problem solving.

Turn in only 1 copy of the exam with all partners' names at the top (by the given due date).

Ethics Project

Names: _____

EXAM 4

SCORE: _____/58

Take home- Due Dec 5th at 10am

Directions: Work in groups of 2-5 people. Exam answers must be typed. Please be as concise as possible. The exam consists of 3 scenarios and 1 "make your own" scenario. Read the first 3 scenarios and complete the questions after each scenario. For the "make your own scenario", make up a potential ethically challenging scenario you might face in the lab and answer the questions for the scenario.

Scenario #1

While working as a student in your microbiology externship you go over to the safety hood to inoculate some media plates with a wound culture and you notice that the UV light in the hood is on. You turn off the UV light and are about to start inoculating your plates when you notice that there is a CSF specimen sitting in the hood. You realize that the CSF specimen must have been sitting under the UV light – which could have killed any bacteria in the specimen and compromise the integrity of the sample. Just as you are about to ask your trainer about the specimen, another tech comes by and asks you to hand them the CSF specimen so they can process it. You notify the tech that when you came to the hood to do your work that the UV light was on and that the CSF specimen was under the UV light. The tech says not to worry, the specimen will be fine because she (the tech) just left the specimen in the hood for "a few minutes". The tech then grabs the CSF specimen from the hood and sits down at another hood and proceeds to inoculate some media plates with the CSF specimen.

What would you do?

1. State the problem (1 point): CSF was under uv light which compromises the integrity of the sample and could lead to false negative results, tech responsible for this denies to take fault or do corrective action
2. List 3 alternative solutions (3 points): 1. Do nothing 2. Inform a supervisor of the situation. 3. Discuss the repercussions of a compromised sample with the tech and try to convince the tech not to use the sample.
3. Frame a choice (pick a solution) (1 point)
4. Discuss how your solution/choice aligns with your values. (2 point): Student must discuss a value and compare the value to their choice

5. List potential short-term consequences of your solution (2 points): Student must list at least 2 possible consequences- either a consequence related to patient, themselves, other staff, or society. The consequence can be negative or positive.

6. List possible long term consequences of your solution. (2 points) Student must list at least 2 possible consequences- either a consequence related to patient, themselves, other staff, or society. The consequence can be negative or positive.

Scenario #2

You are working in the coagulation department and you receive a prothrombin time test on a patient. (A prothrombin time is a blood test that measures how long it takes for blood to form a clot.) As per your procedure, before you can run the test you must check to make sure that the specimen is not already clotted. You check the blood specimen and see that it is clotted. As per your protocol you reject the specimen and call the patient's nurse to have the specimen redrawn. When you tell the nurse that you need to have the specimen redrawn because it is clotted, the nurse refuses to redraw the patient. The nurse says that the doctor is requesting that you run the test regardless and release the results. What do you do?

1. State the problem (1 point) A nurse wants a potentially false coag result to be released.

2. List 3 alternative solutions (3 points). 1. Call the doctor and discuss the situation- explain the problem with clotted specimens and coagulation testing. 2. Try to explain to the nurse the repercussions of releasing a possible false result. 3. Contact your supervisor to handle the issue. 4. Contact the nurse supervisor. 5. Redraw the specimen yourself, or send it to redraw regardless of the nurse's request. Release the results as requested

3. Frame a choice (pick a solution) (1 point)

4. Discuss how your solution/choice aligns with your values. (2 point)

5. List potential short-term consequences of your solution (2 points)

6. List possible long term consequences of your solution. (2 points)

7. If you choose not to release the results, what would you say to the Doctor? (you must answer this question regardless of whether or not it was the solution you picked) (2 points). PT is a test that measures the ability of plasma to clot. If the sample is already clotted before running the PT test, the clotting factors are already used up and the plasma will have a falsely elevated clotting time. The results would be erroneous and thus a new sample (not clotted) is needed in order to give accurate results.

Scenario #3

You are in the lab performing an automated CBC with reticulocyte count on the sysmex machine (hematology analyzer). The sysmex reports out the CBC but there is an error flag for the reticulocyte count. As per the lab's written protocol, if a reticulocyte count on the analyzer flags for an error you must perform a manual reticulocyte count. Performing a manual reticulocyte count is very time

consuming (30 minutes) and you are in the middle of a very busy morning draw run. Performing this manually will most certainly delay other patients' tests. As you are about to prep for the manual reticulocyte count on the blood specimen, your lead technical specialist for hematology stops you. The lead tech specialist advises you to just report out the machine's automated reticulocyte count and forego the manual count because it is going to delay other patients' results. What do you do?

1. State the problem (1 point). Disagreement in procedure between a tech and a supervisor- could affect TAT and patient result values (false results)
2. List 3 alternative solutions (3 points): 1. Do as supervisor tells you. 2. Do as you originally planned. 3. Discuss with the supervisor the repercussions of a possible false result. 3. Bring the topic to a manager for a decision. 4. Wait to perform the manual retic, till after the morning run, then when slow perform the manual test.
3. Frame a choice (pick a solution) (1 point)
4. Discuss how your solution/choice aligns with your values. (2 point)
5. List potential short-term consequences of your solution (2 points)
6. List possible long term consequences of your solution. (2 points)

Scenario #4

(10 points for made up scenario)

Make up a short 1-2 paragraph scenario that might happen in the lab. Answer the following questions using your made up scenario.

1. State the problem (1 point)
2. List 3 alternative solutions (3 points)
3. Frame a choice (pick a solution) (1 point)
4. Discuss how your solution/choice aligns with your values. (2 point)
5. List potential short-term consequences of your solution (2 points)
6. List possible long term consequences of your solution. (2 points)
7. Using the ASCLS code of ethics, what solution/choice should an MLS professional make? How does this choice align with the MLS professional code of ethics? (2 points)

HEMATOLOGY UNKNOWNNS EXERCISE

1. All reference materials can be used **EXCEPT** your instructor and your neighbor. Each day some students will know the answers to some unknowns. Therefore, I depend on your personal integrity to keep the answers private.
2. Your answers to each assigned set are due at the end of each day. All answers should be written on the sheet provided. **Please write only on the front side of each sheet.**
3. Each number represents one patient. If a patient has more than one slide, the slide will be numbered and labeled with a description or the preparation type (ex: #5 BM SBB). Unless otherwise stated on the slide, assume the preparation is a Wrights stained peripheral blood smear.
4. You will be given the patients age, Red blood cell count, Hemoglobin and Hematocrit values.
5. Each complete "Diagnosis" is worth 10 points:

Please record answers in this order.

Patient # _____

a) Diagnosis : _____

- Be as specific as possible with the information you have - 2 points

b) List Abnormalities seen - Include special stain results here - 3 points

c) List all other Possible Diagnoses and / or Sub-categories of your Diagnosis- BE COMPLETE - 2 points

d) List Confirming Tests and other Helpful Data that confirm your diagnosis and / or rule out your other possible diagnoses. You may need to use tests from other laboratory departments - BE COMPLETE - 3 points

UA project

READ the following Directions:

For this laboratory practical you will be performing various microscopic and macroscopic analysis of urine samples. There are 3 tasks to this practical, all 3 tasks must be completed within the allotted 3 hour exam time. The 3 sections do NOT need to be done in any specific order, it is up to you how you allocate your time. Be aware that some supplies will need to be shared and you may need to wait your turn in order to use the piece of equipment/reagent.

You may use any class room materials (notes, computers, books) but you may **not** talk to each other. You are only allowed to talk to another student if it pertains to sharing a piece of equipment (centrifuge) or asking if the other student is done with a reagent. Any other talking in the exam will result in a failure on the test.

Report all results on this worksheet.

Grading Rubric and Microscopic Enumeration for UA

Element	Acceptable Range	Minus 1 point	Minus 2 points
WBC	+/- 1 only when within clinically significant range (6-25, 26-100, >100)	-if it is clinically significant but marked within 1-5 range -if it is not clinically significant but marked in the 6-25 range	
RBC	+/- 1 only when within clinically significant range (3-25, 26-100, >100)	-if it is clinically significant but marked within 1-2 range -if it is not clinically significant but marked in the 3-25 range	
Bacteria	+/- 1	+/- 2 or -Marked "not-present" but are present	+/- 3
Yeast	+/- 1	+/- 2	+/- 3
Amorphous	+/- 1	+/- 2	+/- 3
Mucus	+/- 1	+/- 2	+/- 3
Crystals (type and #)	+/- 1 (with correct ID)	- Incorrect ID or - +/- 2	+/- 3
Casts (type and #)	+/- 1 (with correct ID)	- Incorrect ID or - +/- 2	+/- 3

Foundations II SOP Project

Learning Goals addressed in this project. A student will:

1. Learn the key headings for a CLSI appropriate Standard Operating Procedure.
 - Purpose
 - Reagents/Supplies
 - Safety precautions
 - Sample requirements
 - Quality Control
 - Procedure
 - Expected Results/Interpretation/calculations
 - Results reporting
 - Method specifications/limitations
 - Signatures
2. Work as an individual.
3. Write a procedure for one process performed in any lab class during the MLS program.

MLS students will be expected to write an appropriate procedure. This will include the following:

- Determine the process or procedure subject.
- Research the methods and materials used in the procedure.
- Utilize CLSI guidelines for the structure.
- Utilize appropriate literature regarding critical values and/or reference ranges.
- Record steps in a clear and functional fashion.
- Use pictorial representations when appropriate.
- Use appropriate grammar and writing skills.

The possible topics include:

- Use of hematology analyzer
- Maintenance of hematology analyzer
- Urinalysis
- Serology tests in microbiology

SOP Project Rubric:

Name: _____ Topic: _____ Date: _____

Criteria	Exceeds Expectations (Excellent) 5 points	Meets Expectations (Satisfactory) 3-4 points	Below Expectations (Fair or Poor) 0-2 points
Subject	Topic is appropriate to MLS work in an actual clinical laboratory. Student seems knowledgeable about the topic.	Topic is appropriate to MLS work in a clinical laboratory but it may be too broad for a single procedure or the student does not seem to be appropriately knowledgeable regarding the topic.	Topic is not performed in a clinical laboratory.
CLSI Headings	Sample requirements and materials are researched and appropriate to the test. Reference ranges are listed and accurate according to the literature available. QC steps are listed.	Sample requirements and/or materials are generic or may not include everything. One or more headings may not be thorough or complete.	Sample requirements and materials are not listed or are not appropriate to the test. Reference ranges are not listed. QC not appropriate or too much.
Procedure steps	Steps are concise, reasonable and complete for the process.	Steps are complete for the process but may be lacking in organization or description.	Steps for the process are incomplete or difficult to follow.
Written product	Written product contains all subjects standard for SOP by CLSI guidelines: Purpose Reagents/Supplies, Safety precautions, Sample requirements, Quality Control Procedure, Expected Results/Interpretation/calculations Results reporting Method specifications/limitations There are not grammatical or structural errors.	Written product contains most subjects standard by CLSI guidelines or has significant grammatical or structural errors.	Written products does not address CLSI guidelines and has significant grammatical and structural errors.

Total Points: _____ = _____ % Comments: _____