SAINT LOUIS UNIVERSITY.

Doisy College of Health Sciences

2021-2022 Program-Level Assessment: Annual Report

Program Name (no acronyms): Medical Laboratory Science	Department: Clinical Health Sciences
Degree or Certificate Level: BS and Certificate Programs	College/School: Doisy College of Health Sciences
Date (Month/Year): 09/2022	Assessment Contact: amanda.reed@health.slu.edu

In what year was the data upon which this report is based collected? 2021-2022

In what year was the program's assessment plan most recently reviewed/updated? 2020-2021

Is this program accredited by an external program/disciplinary/specialized accrediting organization? yes

Note to DCHS Programs:
Please use this format to title each report file- 2021-2022, program title abbreviation, Prog-Lvl Assess AnnualRpt
[example: 2021-2022,HSCI_ProgLvlAssessAnnualRpt]

Upload completed reports to the T-drive here: [each program has a separate folder]
Allied Health | Common | 1.2-2021-2022 DCHS ProgLvlAssessRpts

Thank you!

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle? (Please list the full, complete learning outcome statements and not just numbers, e.g., Outcomes 1 and 2.)

PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

PLO #4: Student will integrate knowledge of laboratory theory into practice.

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please describe the artifacts in detail and identify the course(s) in which they were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

Artifact 1 - MLS 4550 Medical Bacteriology Final Unknown Laboratory Report form.

Students were each given a mock specimen containing normal bacterial flora as well as a pathogenic bacterial organism, each from a different body site. Students were expected to follow established laboratory procedures appropriate for their assigned specimen type to perform, interpret, and report the preliminary and final test results. This included choosing the correct method to inoculate media, choose the correct incubation conditions, choose and document the appropriate tests needed to identify pathogens and differentiate them from normal flora, interpret test results, and report final results (including verbally reporting panic values to the "nurse/physician", if appropriate).

Artifact 2- MLS-4800 Clinical Microbiology Practicum / Work Skills Evaluation Form
(This is a clinical course that takes place at hospital microbiology labs throughout the St. Louis metropolitan area).

The purpose of the Work Skills Evaluation form is to master skills required by the Medical Laboratory Science Program in the clinical setting. At the completion of MLS 4800 Clinical Microbiology Practicum, the student will have successfully completed the following:

1. Assess the pre-analytical, analytical, and post-analytical components of testing. (Evaluate)
2. Demonstrate proficiency in the maintenance and operation of instrumentation. (Apply)
3. Correlate laboratory results with possible disease states. (Analyze)
4. Solve discrepancies using laboratory data with recommendations for next steps. (Create)
5. Apply laboratory safety guidelines consistently. (Apply)
6. Integrate professional behaviors into laboratory practice. (Create)

Students collaborate with their clinical preceptors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor will comply with the laboratory's standards. Students will further meet the laboratory standards for work habit skills, patient confidentiality, safety, waste disposal, and work area maintenance.

Students make every effort to observe or participate in performing the following rarely performed tests. Performance and/or observations of all competencies are documented with the date and initials of the instructor.

All students were in-seat at Saint Louis University in St. Louis.

PLO #4: Students will demonstrate the application of laboratory principles.

Artifact-1- BLS 1150 Foundations of Medical Laboratory Science Laboratory / Hematology Laboratory exercise.

This laboratory exercise is designed to have students perform a modified differential white blood cell count. The 6 normal white blood cells types can be differentiated based on certain characteristics involving the size, nucleus, and cytoplasm of the cell, and then the percentage of each type of white blood cell can be determined. Differential testing can often suggest the patient's diagnosis.

By the end of this exercise, students will be able to:

1. Discuss the 3 parts of the manual differential.
2. Assess the "counting area" on a peripheral blood smear.
3. Perform a modified white blood cell count and platelet count.
4. Calculate the results of a modified white blood cell count and platelet count.
5. Interpret the results of a modified white blood cell count.
6. Formulate a presumptive diagnosis based upon the results of a modified white blood cell count

Artifact-2- MLS 4740 Clinical Hematology / Work Skills Evaluation
(This is a clinical course that takes place at hospital microbiology labs throughout the St. Louis metropolitan area).

The purpose of the Work Skills Evaluation form is to master skills required by the Medical Laboratory Science Program in the clinical setting. At the completion of MLS 4740 Clinical Hematology Practicum, the student will have successfully completed the following:

1. Assess the pre-analytical, analytical, and post-analytical components of testing. (Evaluate)
2. Demonstrate proficiency in the maintenance and operation of instrumentation. (Apply)

3. Correlate laboratory results with possible disease states. (Analyze)
4. Solve discrepancies using laboratory data with recommendations for next steps. (Create)
5. Apply laboratory safety guidelines consistently. (Apply)
6. Integrate professional behaviors into laboratory practice. (Create)

Students collaborate with their clinical preceptors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor will comply with the laboratory's standards. Students will further meet the laboratory standards for work habit skills, patient confidentiality, safety, waste disposal, and work area maintenance.

Students make every effort to observe or participate in performing the following rarely performed tests. Performance and/or observations of all competencies are documented with the date and initials of the instructor.

All students were in-seat at Saint Louis University in St. Louis.

3. Assessment Methods: Evaluation Process

What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and **include them in/with this report document** (please do not just refer to the assessment plan).

PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

Artifact 1- MLS 4550 Medical Bacteriology Laboratory / Laboratory report forms (n = 12)

This report form is the last of the bacteriology unknowns and is presented in a case study format. Students are asked to use patient history, symptoms, and clinical findings to identify the causative agent of the patient's infection (using established laboratory procedures) and report the findings. This is done by either calling panic values to the physician caring for the patient (who is one of our faculty members) or simply issuing a report for non-panic values. It is graded by the course instructor and assigned a grade out of 20 points. The Program Director uses the assessment rubric located in the appendix to evaluate the laboratory report forms.

Artifact 2- MLS-4800 Clinical Microbiology Practicum / Work Skills Evaluation (n= 7)
(This is a clinical course that takes place at hospital microbiology labs throughout the St. Louis metropolitan area).

This PLO is measured using the MLS 4800 Clinical Microbiology Work Skills evaluation form. The forms were completed by the Clinical Preceptors at the end of the students' clinical rotation and were then evaluated by the MLS Program Director. The Clinical Preceptor ranked the students on a scale of 1 to 5 (5 being the highest score) on various competencies that are linked to our specific MLS program goals and PLOs. The MLS Program Director used the assessment rubric located in the appendix to review the scores of the respective competencies. The Program Director identified students scoring 4 or 5 as achieving the ranking of "master" since, per the evaluation form, the student met the "level of competency required by the laboratory for that task or process." The Program Director identified students scoring a 3 as achieving the ranking of "reinforce" and scoring a 1 or 2 as "introduced".

> **LEVEL 1:** Discussed: Process was discussed, principle explained, and the **student acknowledged an understanding** of the process or principle.
>
> **LEVEL 2**: Demonstrated: Process has been performed and demonstrated by the practicum instructor. Student has observed the demonstration and has been allowed to ask questions as needed. The **student acknowledges an understanding** of the process or principle by verbally explaining the process or principle back to the practicum instructor.
>
> **LEVEL 3**: Practiced: Student has practiced the process under the direction and maximum supervision of the

practicum instructor. The student demonstrates a knowledge of how to perform the process or task by actual performance under direct, maximum supervision, but **without having to demonstrate any competency** at that task or process.

LEVEL 4: Maximum Supervision: The student has performed the process under the direct, maximum supervision of the practicum instructor, and with the **level of competency required by the laboratory for that task or process.**

LEVEL 5: Minimum Supervision: The student can perform the process satisfactorily with only minimum, or non-direct supervision by the practicum instructor, and the performance meets the **level of competency required by the laboratory for that task or process.**

N/A: Not Available/Applicable: Due to the nature of the laboratory, the student does not have access to the equipment/test method.

PLO #4: Students will demonstrate the application of laboratory principles. (n = 5)

Artifact-1- BLS 1150 Foundations of Medical Laboratory Science Laboratory / Hematology Laboratory exercise.

The hematology laboratory exercise was reviewed by the MLS Program Director. The Program Director used the assessment rubric located in the appendix to evaluate each assignment. The results were tallied and the Program Director determined the % of students that achieved a ranking of "introduce" or higher on the assessment rubric

Artifact-2- MLS 4740 Clinical Hematology Work Skills Evaluation (n=7)

The forms were completed by the Clinical Preceptors at the end of the students' clinical rotation and were then evaluated by the MLS Program Director. The Clinical Preceptor ranked the students on a scale of 1 to 5 (5 being the highest score) on various competencies that are linked to our specific MLS program goals and PLOs. The MLS Program Director used the assessment rubric located in the appendix to review the scores of the respective competencies. The Program Director identified students scoring 4 or 5 as achieving the ranking of "master" since, per the evaluation form, the student met the "level of competency required by the laboratory for that task or process." The Program Director identified students scoring a 3 as achieving the ranking of "reinforce" and scoring a 1 or 2 as "introduced".

LEVEL 1: Discussed: Process was discussed, principle explained, and the s**tudent acknowledged an understanding** of the process or principle.

LEVEL 2: Demonstrated: Process has been performed and demonstrated by the practicum instructor. Student has observed the demonstration and has been allowed to ask questions as needed. The student **acknowledges an understanding** of the process or principle by verbally explaining the process or principle back to the practicum instructor.

LEVEL 3: Practiced: Student has practiced the process under the direction and maximum supervision of the practicum instructor. The student demonstrates a knowledge of how to perform the process or task by actual performance under direct, maximum supervision, but **without having to demonstrate any competency** at that task or process.

LEVEL 4: Maximum Supervision: The student has performed the process under the direct, maximum supervision of the practicum instructor, and with the **level of competency required by the laboratory for that task or process.**

LEVEL 5: Minimum Supervision: The student can perform the process satisfactorily with only minimum, or

non-direct supervision by the practicum instructor, and the performance meets the **level of competency required by the laboratory for that task or process.**

N/A: Not Available/Applicable: Due to the nature of the laboratory, the student does not have access to the equipment/test method.

4. Data/Results

What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

Artifact 1- MLS 4550 Medical Bacteriology Laboratory / Laboratory report forms

100% (12/12) of the students could "document work-ups and decisions clearly, legibly, and concisely per the institution's procedures" and achieved the ranking of "introduce". 58% (7/12) of the students could "evaluate information to prepare preliminary and final reports using established laboratory protocols with minimal error" and earned a ranking of "reinforce". 42% (5/12) could "assess panic values and correctly notify appropriate personnel with documentation" and achieved a "mastery" ranking.

Teaching modality did not differ for this artifact. All students completed this exercise in an in-seat learning environment.

Artifact 2- MLS-4800 Clinical Microbiology Practicum / Work Skills Evaluation (This is a clinical course that takes place at hospital microbiology labs throughout the St. Louis metropolitan area).

100% (7/7) of the students achieved a ranking of "mastery". Meaning 100% of the students were able to "assess panic values and correctly notif[y] appropriate personnel with documentation.

Teaching modality did not differ for this artifact. All students were assessed at off campus locations as part of their clinical practicums.

PLO #4: Students will demonstrate the application of laboratory principles.

Artifact-1- BLS 1150 Foundations of Medical Laboratory Science Laboratory / Hematology Laboratory exercise.

An average of 100% (5/5) of students achieved a ranking of "introduce" or higher using corresponding assessment rubric. Students we able to "follow workflow protocol utilizing procedures/operating manuals and/or verbal direction from the instructor." 100% (5/5) of student achieved a ranking of "reinforce" or higher using the assessment rubric. Students could "interpret laboratory results". Mastery ("Evaluates pre-analytical, analytical, and post-analytical laboratory processes alongside the patient's reported physiologic conditions to assess the reliability of test results") could not be determined. This is because the students were debriefed on the assignment prior to the assignment being collected. Students had the opportunity to correct their answer to questions that would have assessed mastery level.

Teaching modality did not differ for this artifact. All students completed this exercise in an in-seat learning environment.

Artifact-2- MLS 4740 Clinical Hematology Work Skills Evaluation

100% (7/7) of the students earned a ranking "mastery". Meaning 100% of the students could "evaluate pre-analytical, analytical, and post-analytical laboratory processes alongside the patient's reported physiology condition to assess the reliability of results."

Teaching modality did not differ for this artifact. All students were assessed at off campus locations as part of their clinical practicum

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

Artifact 1- MLS 4550 Medical Bacteriology Laboratory / Laboratory report forms

100% of the students achieved the goal which was to earn a ranking of "introduce" or higher. However, only 58% earned a ranking of "reinforce". In the future, students will have the opportunity to practice notifying the appropriate person of alert values before being assessed. This will be achieved through role playing exercises where the students pretend to call the nurse or physician caring for the patient in order to practice their phone etiquette and script.

Artifact 2- MLS-4800 Clinical Microbiology Practicum / Professional Development Evaluation (This is a clinical course that takes place at hospital microbiology labs throughout the St. Louis metropolitan area).

100% of the students achieved a ranking of "mastery". We revised the evaluation forms so that each competency was associated with its own score. During the previous evaluation period, multiple competencies were associated with one score. In addition, the competency forms were revised to include wording that better reflected the Program Assessment Rubric criteria. This made for much easier evaluation by the Program Director and the forms were easier to use based on Clinical Preceptor feedback.

Additional assessment cycles are needed to determine whether changes remain useful over time of if additional modifications are needed.

PLO #4: Students will demonstrate the application of laboratory principles.

Artifact-1- BLS 1150 Foundations of Medical Laboratory Science Laboratory / Hematology Laboratory exercise.

Per the 2019-2020 Assessment Plan Report, the Hematology exercise was modified to better determine "reinforce" and "mastery". Additional questions were added to the assignment to measure these outcomes. The changes were helpful in determining students who were at the "reinforce" level. Instructor error made it impossible to determine "mastery" since the students were debriefed before the assignment was collected and had the opportunity to correct their responses based upon the in-class discussion.

Artifact-2- MLS 4740 Clinical Hematology Work Skills Evaluation

100% of the students achieved a ranking of "mastery". We revised the evaluation forms so that each competency was associated with its own score. During the previous evaluation period, multiple competencies were associated with one score. In addition, the competency forms were revised to include wording that better reflected the Program

Assessment Rubric criteria. This made for much easier evaluation by the Program Director and the forms were easier to use based on Clinical Preceptor feedback.

Additional assessment cycles are needed to determine whether changes remain useful over time of if additional modifications are needed.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

These results will be shared and discussed at the fall 2022 MLS faculty meeting.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies	• Course content • Teaching techniques • Improvements in technology • Prerequisites	• Course sequence • New courses • Deletion of courses • Changes in frequency or scheduling of course offerings
Changes to the Assessment Plan	• Student learning outcomes • Artifacts of student learning • Evaluation process	• Evaluation tools (e.g., rubrics) • Data collection methods • Frequency of data collection

Please describe the actions you are taking as a result of these findings.

PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

Artifact 1- MLS 4550 Medical Bacteriology Laboratory / Laboratory report forms
In the future, students will have the opportunity to practice notifying the appropriate person of alert values before being assessed. This will be achieved through role playing exercises where the students pretend to call the nurse or physician caring for the patient in order to practice their phone etiquette and script.

PLO #4: Students will demonstrate the application of laboratory principles.

Artifact-1- BLS 1150 Foundations of Medical Laboratory Science Laboratory / Hematology Laboratory exercise. The hematology artifact will change because we are launching an online program. These students are not required to take BLS 1150 Foundations of Medical Laboratory Science. Therefore, all students (online and in seat) will be assessed in BLS 4210 Hematology. The Program Director will work with the course instructor on creating a new artifact.

If no changes are being made, please explain why.

7. Closing the Loop: Review of Previous Assessment Findings and Changes

A. What is at least one change your program has implemented in recent years as a result of assessment data?

NA. We have not yet had enough consistent evaluation methods or continuous assessment cycles to make any meaningful determinations from the assessment data.

B. How has this change/have these changes been assessed?

NA

C. What were the findings of the assessment?

NA

D. How do you plan to (continue to) use this information moving forward?

NA

IMPORTANT: *

Please submit any assessment tools (e.g., artifact prompts, rubrics) with this report as separate attachments or copied and pasted into this Word document. *Please do not just refer to the assessment plan; the report should serve as a stand-alone document.*

For DCHS Programs:

If you choose to copy/paste items from the list above* and those below^, clearly label them within the Word document. Example: PLO1 Rubrics

Submit a description of each artifact and whenever possible, an example of a student-completed artifact with the student's name removed.

Submit the actual analyzed data (not the raw data) for each PLO being assessed.

If the items below are submitted as separate documents^, label them following these examples:

2021-2022,HSCI_ArtifactDesciption4PLO1

2021-2022,HSCI_CurrentAssessRubrics4PLO1

2021-2022,HSCI_AnalyzedData4PLO1

2021-2022, HSCI_Revised ProgLvlAssessPlan

Use the same labelling format for other separate documents germane to the PLO under assessment.

MLS 4550 Medical Bacteriology Laboratory – Spring 2022
Mystery Unknown

Name: [redacted] **Date:** 4/20

Unknown # 7 **Patient Name:** Jonas, Nick

Preliminary Report (Day 1): Moderate GPCPRCH, To be identified
Moderate GPCCL, To be identified

Final Report (Day 3): Mod. normal skin flora
Few Normal skin flora > WHICH AMOUNT IS IT?

Alert Value Documentation: moderate S. pyogenes
moderate Oxacillin-Resistant S. aureus
moderate normal flora

Physician Name	Location	Call back #	Time Notified	# Positive Sets	# Collected Sets
Amanda Reed	45	977-8686	10:30		

DAY 1 (Wednesday) Wound

Direct Smear from TSB (Record Gram stain results below) -

	Quantity	
PMNs	NPLs	
SECs	NSECs	
RBCs		
	Quantity	Gram Stain, Shape & Arrangement
Organism	1. abundant 2. abundant 3. Few 4. abundant	1. GPC 2. GPC 3. GPR 4. GPR

DAY 1 (Wednesday)

Quantitation and colony morphology (Record results below)-

BAP:	CHOC: N/A	MAC:
1. moderate, small, beta, gray	1.	1. No growth
2. moderate, small, beta white	2.	2. No growth
3. moderate, sm-med, gamma gray	3.	3. No growth
4. Few, med, gamma, gray	4.	4. No growth

Gram stain from colony (Record results below) -		
BAP: 1. GPCPRCH 2. GPCCL 3. GPR – palisading 4. GPR	CHOC: 1. 2. 3. 4.	

Presumptive biochemical testing performed with results-		
Organism 1 Tests: 1. subculture 2. 3. 4.	Organism 1 Results: 1. 2. 3. 4.	Organism 1 Interpretations: 1. 2. 3. 4.
Organism 2 Tests: 1. subculture 2. 3. 4.	Organism 2 Results: 1. 2. 3. 4.	Organism 2 Interpretations: 1. 2. 3. 4.
Organism 3 Tests: 1. catalase 2. 3. 4.	Organism 3 Results: 1. bubble 2. 3. 4.	Organism 3 Interpretations: 1. positive 2. 3. 4.
organism 4 → catalase, motility	bubble, no movement	positive, negative

Testing set up on day 1 to read on day 2 –
Organism 1: 1. subculture = pure 2. 3.
Organism 2: 1. subculture = pure 2. 3.
Organism 3: 1. 2. 3.
Organism 4: 1. 2. 3.

DAY 2(Thursday)

testing from day 1 –

Organism 1 Tests:	Organism 1 Results:	Organism 1 Interpretations:
1. catalase	1. no bubble	1. negative
2. PYR	2. pink	2. positive
3.	3.	3.
Organism 2 Tests:	**Organism 2 Results:**	**Organism 2 Interpretations:**
1. catalase	1. bubble	1. positive
2. coagulase (staph latex)	2. agglutination	2. positive
3.	3.	3.
Organism 3 Tests:	**Organism 3 Results:**	**Organism 3 Interpretations:**
1.	1.	1.
2.	2.	2.
3.	3.	3.
Organism 4 Tests:	**Organism 4 Results:**	**Organism 4 Interpretations:**
1.	1.	1.
2.	2.	2.
3.	3.	3.

Testing set up on day 2 to read on day 3 –

Organism 1:
1.
2.
3.

Organism 2:
1. Susceptibility testing
2. Purity plate
3.

Organism 3:
1.
2.
3.

Organism 4:
1.
2.
3.

DAY 3 (Friday)		
Test results from day 2		
Organism 1 Tests: 1. 2. 3. Organism 2 Tests: 1. punty plate 2. 3. Organism 3 Tests: 1. 2. 3. Organism 4 Tests: 1. 2. 3.	Organism 1 Results: 1. 2. 3. Organism 2 Results: 1. single colony growth 2. 3. Organism 3 Results: 1. 2. 3. Organism 4 Results: 1. 2. 3.	Organism 1 Interpretations: 1. 2. 3. Organism 2 Interpretations: 1. pure 2. 3. Organism 3 Interpretations: 1. 2. 3. Organism 4 Interpretations: 1. 2. 3.

Staphylococcus	Oral	IM	IV	Class/Subclass	Results (mm)	R	I	S
Cefoxitin (FOX)		X	X	Cephem - Cephamycin	25			✓
Erythromycin (E)	X		X	Macrolide	25			✓
Clindamycin (CC)	X	X	X	Lincosamide	24			✓
Trimethoprim/Sulfamethoxazole (SXT)	X		X	Folate pathway inhibitor	6	✓		
Doxycycline (D)	X		X	Tetracycline	25			✓
Vancomycin(VA)	X		X	Glycopeptide	~~18~~ N/A			
Ciprofloxacin (CIP)	X		X	Fluoroquinolone	17			✓
Cefazolin(CZ)		X	X	Cephem - Cephalosporin I	29			✓
Nitrofurantoin (FM)*Urine only	X			Nitroheterocyclic	N/A			
Penicillin (PEN)	X	X	X	Penicillin	21	✓		
Oxacillin (OX)		X	X	Penicillin	6	✓		

[redacted] [redacted]

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #2): Students will communicate accurate laboratory information to members of the healthcare team.		
Introduce**	**Reinforce****	**Master****
• Documents work-ups and decisions clearly, legibly, and concisely per the institution's procedures	• Evaluate the above information to prepare preliminary and final reports using established laboratory protocols with minimal error.	• Assess panic values and correctly notifies appropriate personnel with documentation.

**IMPORTANT NOTES: The ratings, identified by the column headings, are of increasing complexity moving across the table (from left to right).

- NEEDE A LOT OF GUIDANCE ON REPORTING - MOD ERROR
- DID CAL CORRECTLY

SAINT LOUIS UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM
PERFORMANCE EVALUATION AND ROTATION CHECKLIST

Student: [redacted] *Date:* 9/16/2021

Section/Rotation: Clinical Microbiology

Evaluator(s): [redacted]

Clinical Site(s): [redacted]

Results of the evaluation and checklist will comprise 100% of the student's final grade for that clinical rotation.

The purpose of the work skills checklist is to master skills required by the Medical Laboratory Science Program in the clinical setting.

The purpose of the professional development evaluation is to provide feedback to the student on their performance as a laboratory professional. The evaluation is designed to be similar to and thus prepare the student for the type of employee appraisal process the student will encounter when employed.

This packet should be completed, reviewed with the student, signed for acknowledgement of receipt, and submitted to the program director no more than one business day after the student has completed the rotation.

For SLU Program Coordinator's use only:

Grade:	Numeric Value	Letter Grade
Work Skills Evaluation:	100%	A
PD Evaluation:	100%	A
Final Grade:	100%	A

SECTION I: WORK SKILLS EVALUATION

At the completion of MLS 4800 Clinical Microbiology Practicum, the student will have successfully completed the following:

1. Assess the pre-analytical, analytical, and post-analytical components of testing. (Evaluate)
2. Demonstrate proficiency in the maintenance and operation of instrumentation. (Apply)
3. Correlate laboratory results with possible disease states. (Analyze)
4. Solve discrepancies using laboratory data with recommendations for next steps. (Create)
5. Apply laboratory safety guidelines consistently. (Apply)
6. Integrate professional behaviors into laboratory practice. (Create)

Students will collaborate with their instructors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor will comply with the laboratory's standards. Students will further meet the laboratory standards for work habit skills, patient confidentiality, safety, waste disposal, and work area maintenance.

Students should make every effort to observe or participate in performing the following rarely performed tests. Performance and/or observations of all competencies should be documented with the date and initials of the instructor.

Students must achieve an 80% score in the Work Skills practical rotation.

Instructors: Please adjust "Goals" and numbers of tests to fit your institution's workload, situation, and your convictions of what is satisfactory proficiency for your laboratory situation.

MLS 4800: CLINICAL MICROBIOLOGY PRACTICUM

LEVELS OF COMPETENCY

LEVEL 1 DISCUSSED: Process was discussed, principle explained, and the student acknowledged an understanding of the process or principle.

LEVEL 2 DEMONSTRATED: Process has been performed and demonstrated by the practicum instructor. Student has observed the demonstration and has been allowed to ask questions as needed. The student acknowledges an understanding of the process or principle by verbally explaining the process or principle back to the practicum instructor.

LEVEL 3 APPROACHES EXPECTATIONS: Student has practiced the process under the direction and maximum supervision of the practicum instructor. The student demonstrates a minimal knowledge of how to perform the process or task and often requires assistance or direction. The student's performance does not meet the level of competency required by the laboratory for that task or process. 3 points

LEVEL 4 MEETS EXPECTATIONS: The student can perform the process under the direct supervision of the practicum instructor with minimal error. The student's performance meets the level of competency required by the laboratory for that task or process. 4 points

LEVEL 5 EXCEEDS EXPECTATIONS: The student can perform the process satisfactorily with only minimum or non-direct supervision by the practicum instructor. The student's performance is accurate and in-depth details of process can be provided. 5 points

N/A NOT AVAILABLE/APPLICABLE: Due to the nature of the laboratory, the student does not have access to the equipment/test method.

OBJECTIVE	EXPECTED COMPETENCY	EARNED SCORE	INDICATE IF ONLY: DISCUSSED (LVL 1) DEMONSTRATED (LVL 2) N/A	INSTRUCTOR INITIALS	DATE
Pre-Analytical					
• Accepts into the laboratory appropriate and correctly labeled specimens for testing	4	5		fuy	8/23
• Takes appropriate action if specimen is unacceptable	4	5		↓	8/23
• Correctly processes specimens for testing	4	5		↓	8/23
• Maintains sample identity and worksheet documentation throughout processing	4	5		↓	8/23
• Initial streaking or plating of specimens correctly performed using proper media per protocol	4	5		↓	8/23
Quality Control					
• Runs QC as directed and correctly interprets results	4	5		fuy	8/24
• Performs and documents daily and/or weekly maintenance	4	5		↓	8/24
• Recognizes QC failure and notifies trained personnel and initiates corrective action	4	5		↓	8/24
• Performs checks for media and reagent expiration dates	4	5		↓	8/24
• Monitors temperatures on incubators, refrigerators, heat blocks, etc.	4	5		↓	8/24
Analytical					
• Follows written/verbal directions for instrument operation	4	5		fuy	8/26
• Recognizes basic instrument problems and notifies trained personnel if necessary	4	5		↓	8/26
• Prepares acceptable smears and performs the gram stain procedure successfully	4	5		↓	8/26

• Properly quantifies stained smears when appropriate	4	5		fuy	8/26
• Properly evaluates stained smears for quality	4	5			8/26
• Evaluates the reaction and morphology of organisms and cells correctly	4	5			8/26
• Correctly correlates gram stain results with growth on culture media	4	5			8/26
• Recognize colony characteristics of bacteria from one media to another	4	5			8/26
• Quantitates colonies accurately	4	5			8/26
• Correctly correlates growth on culture media and growth conditions with bacterial identifications	4	5			8/30
• Distinguishes normal flora or contaminants from pathogens in properly incubated culture types	4	5			8/30
Culture Interpretation **Demonstrates skill at interpreting the following culture types (not an exhaustive listing):**					
• Respiratory	4	5		fuy	8/30
• Urine	4	5			9/8
• Wound/Tissue	4	5			8/30
• Blood	4	5			9/8
• Stool	4	5			9/8
• Body Fluid	4	5			8/30
• Correctly isolates and subcultures bacteria onto appropriate media	4	5			8/30
• Selects, performs, and interprets preliminary and confirmatory biochemical tests for identification	4	5			9/14
• Performs identifications and susceptibilities on unknowns (minimum 20)	4	5			9/14
Mandatory Organism Identification **Able to correctly identify the following organisms (this is not an exhaustive listing, other organism identification should be occurring when possible, these organisms listed below are mandatory):**					
• *Staphylococcus* spp. to include *S. aureus, S. epidermidis,* and *S. saprophyticus*	4	5		fuy	8/30
• *Streptococcus* spp. to include *S. pyogenes, S. agalactiae,* and *S. pneumoniae*	4	5			
• *Enterococcus* spp.	4	5			
• *Haemophilus* spp.	4	5			
• *Neisseria* spp. and/or *Moraxella catarrhalis*	4	5			
• *Enterobacteriaceae*	4	5			
• *Pseudomonas aeruginosa*	4	5			
• Performs and interprets MIC testing (micro-broth and/or automated systems) correctly	4	5			9/10
• Recognizes classic antibiotic patterns that organisms ordinarily display	3	5			9/10
• Recognizes multi-drug resistant organisms to include oxacillin resistance for *S. aureus,* vancomycin resistance for *Enterococcus*, and ESBL for *Enterobacteriaceae*	4	5			9/10
Non-Compulsory Procedures **Note: The following analytical testing is not mandatory as we recognize that not all labs consist of the same testing menu, if you do perform any of the following or others not listed, please assess the student as applicable. The items may still be discussed or observed with the student as deemed fit.**					
• Performs anaerobic work-up and identification	4	5		fuy	8/30

• Correctly performs Kirby-Bauer susceptibility testing, special resistance detection methods, and interprets zone sizes accordingly	4	5		fy	9/10
• Performs E-test testing and interprets zone sizes within established guidelines	3	5			9/10
• Uses and interprets Beta-lactamase testing correctly	3	5			9/10
• Performs other susceptibility testing within established guidelines that may include, but not limited to the following (please indicate which tests were performed):					
• Inducible clindamycin resistance for *S. aureus*, beta-hemolytic *Streptococcus* spp., and *S. pneumoniae*	3	5		fy	9/10
• Vancomycin resistance for *Staphylococcus* spp.	3	5			9/10
• High-level aminoglycoside resistance for *Enterococcus* spp.	3	5			9/10
• Penicillin resistance for *S. pneumoniae*	3	NA			9/10
• ampC enzymes for gram negative rods	3	5			9/10
• Carbapenemase resistant *Enterobacteriaceae* (CRE)	3	5			9/10
• Perform other testing not listed above within established guidelines. Tests may include, but not limited to the following (please indicate which tests were performed):					
• Acid-Fast Staining	3	5		fy	9/7
• Fluorochrome Staining	3	5			9/7
• Methylene Blue Fecal Leukocyte Stain	3	NA			–
• Yeast assimilations	3	5			8/31
• Fungal Culture interpretation	3	5			8/31
• ELISA for *Giardia/Cryptosporidium*	3	NA			–
• Malaria smears (thick and thin)	3	5			8/24
• Other stains for parasites	3	5			8/24
• Bacterial Antigen Detection (CSF)	3	NA			–
• Blood Culture for AFB	3	5			9/7
• *C. difficile* identification	3	NA	Done on nights		–
• Other (please list):	3	NA			–
Immunological Kit Testing **Note: Each lab may have kit testing (i.e. Infectious mono, pregnancy, Influenza, etc) set up in different areas of the lab. In recognition of this, please complete the following if the student performed kit testing within this department.**					
Tests performed on Kits in this department (please list): PBP2A, Crypococcal Antigen, H. pylori antigen, Covid Cephied testing, API, Rapid NH/CB, Coagulase					
• Identifies and uses appropriate sample for kit testing	4	5		fy	8/24
• Correctly follows procedural directions and accurately performs testing	4	5			8/24
• Correctly performs and interprets results of latex agglutination/hemagglutination testing	4	5			8/20
• Correctly performs and interprets results of ELISA/EIA testing	4	5			8/24
• Correlates results with other clinical observations or results	4	5			8/24
• Recognizes sources of error	4	5			8/24
Molecular Infectious Disease Testing					

Note: Perform and evaluate the molecular testing items that occur within your lab for infectious disease. This section is mandatory for the Microbiology Certification students and must be fully completed.					
• States general principles of instrument methodologies used in molecular testing	4	NA		fyi	—
• Follows written/verbal directions for instrument operation	4	NA			—
• Monitors reagent levels and changes them as needed	4	NA			—
• Perform manual PCR techniques within established guidelines	4	NA			—
• Performs testing for infectious diseases within established guidelines. Please indicate which tests were performed with the student at your facility:					
• Respiratory Panel	4	NA		fyi	—
• GI Panel	4	NA			—
• Meningitis/Encephalitis Panel	4	NA			—
• Blood Culture ID	4	5			9/15
• Pneumonia Panel	4	NA			—
• Influenza	4	NA			—
• Group A Strep	4	NA			—
• COVID-19	4	5			8/26
• Other (please list): Cepheid	4	5			8/26
• Performs and interprets molecular identification of organism	4	5			8/26
• Performs and interprets molecular detection of resistance correctly	4	5			8/26
• Correlate the clinical significance of the molecular procedure and results with the disease process	4	5			8/26
Post-Analytical					
• Identifies valid results and can spot inconsistencies or questionable ones	4	5		fyi	8/26
• Identifies panic values and notifies trained personnel	4	5			
• Identifies possible sources of error and initiates resolution	4	5			
• Reports results without error	4	5			
• Handles documents, record-keeping, and reports per policy	4	5			
• Documents work-ups and decisions clearly, legibly and concisely per your institution's procedures	4	5			
General Lab Skills					
• Organizes and prioritizes workload	4	5		fyi	8/26
• Follows required documentation protocol (checklists, logs, QC)	4	5			
• Work area to include microscope left clean and countertops disinfected	4	5			
• Supplies restocked or staff notified of low levels	4	5			
TOTAL NUMBER OF COMPETENCIES MET: 78/78 (Passing score is ≥80%)					100%

390/390 : 100%

Discipline	Instruments Utilized to Evaluate Work Practice Skills
Automated Instrumentation for processing and plating of specimens	Kiestra
Automated Instrumentation for ID of organisms (MALDI, Vitek, etc)	MALDI
Automated Immunoassay Instrumentation	N/A
Blood Culture Instrumentation	Virtuo
Molecular Instrumentation	Cepheid, nanosphere
Automated Susceptibility Instrumentation	N/A
Immunological Kits	See previous page (page 5)

Comments: He picked up the lab work quickly! Acted very professional everyday. Passed out unknowns.

SECTION II: PROFESSIONAL DEVELOPMENT EVALUATION

INSTRUCTIONS TO THE EVALUATOR:
Rate the student in each area by circling:
2 = Needs improvement. / Student is not performing as would be expected of an entry level MLS.
4 = Meets expectations. / Student is currently performing as an entry level MLS to varying degrees.
5 = Exceptional. / Student's performance is well above what would be expected of an entry level MLS.

- ➔ Comments can be made as needed at the end of this section. Please be specific in illustrating why rating is assigned especially if scoring as "needs improvement".
- ➔ Ratings of 2 may require remedial work by the student at the instructor's discretion and will require a meeting with the program coordinator

Minimum grade of 80% in Professional Development is required to successfully complete the rotation.

COGNITIVE/ACADEMIC PERFORMANCE:

1. **Knowledge of the subject**	Can relate minimal information outlined in the learning objectives.	Demonstrates good theoretical knowledge of the material covered. Can verbally relate the information outlined in the learning objectives.	Demonstrates unusual depth of understanding with productive discussion and probing questions. Grasps theoretical concepts usually understood after >1 year experience.
Circle:	2	4	5
2. **Application of knowledge to practice**	Has difficulty translating knowledge to practice. Unable to proceed once directions are given.	Applies knowledge to bench work. Demonstrates ability to proceed based on initial findings, i.e. can perform procedure without prompting. Demonstrates appropriate decision making and problem solving skills for entry level MLS.	Can extrapolate knowledge and apply to low volume or seldom seen specimens or situations.
Circle:	2	4	5
3. **Judgment: Problem recognition and resolution (PLO #2, #4)**	Has difficulty distinguishing normal from abnormal situations. Doesn't recognize or proceed appropriately in problem situations, i.e. problem specimen or QC out of range.	Recognizes normal from abnormal. Recognizes problem specimens with ease. Proceeds appropriately in each case. Recognizes situations that require consultation with instructor and asks appropriate questions.	Exceptional at problem identification and solving. Instructor would feel comfortable having student perform their own family member's lab samples with no worry.
Circle:	2	4	5

Took great notes and showed his knowledge!

Could tell when a test result wasn't right + knew to repeat.

PSYCHOMOTOR/BENCH PERFORMANCE:

4. **Bench Work: Skills and pace**	Everyday bench skills need improvement. Hasn't developed work pace that would meet expected turn-around-times. OR Sacrifices accuracy for speed: makes mistakes, misses things by going too fast.	Does good work at the bench. Has good manual dexterity. Demonstrates efficiency/balances speed and accuracy. Can maintain appropriate work pace while producing accurate results.	Demonstrates excellent multitasking skills usually seen in experienced techs.
Circle:	**2**	**4**	**5**

5. **Safety Practices**	Does not carry out safety practices at all times, student disregarded or had inconsistent adherence to safety rules.	Observes safety practices including wearing lab coat/gloves the majority of the time with only occasional lapses; has no food in the lab; proper disposal of waste in appropriate bins.	Observes safety practices at all times with no prompting to include wearing lab coat/gloves, no food in the lab, and appropriate disposal of waste.
Circle:	**2**	**4**	**5**

Learned a lot about BT practices

AFFECTIVE/TEAM PERFORMANCE:

6. **Professionalism/ Maturity (PD 2, 5, 11) (PLO #4)**	Does not follow policies set forth by clinical site. Complains about policies and expectations.	Follows all policies at all times without complaint. Focused. Engaged in learning activities and lab environment. Is a good representative of the laboratory profession.	Unsolicited positive feedback received from non-instructors or people outside section, i.e. student's professional behavior is above and beyond.
Circle:	**2**	**4**	**5**

Very professional + asked great questions!

7. **Attendance/Punctuality (PD 1)**	Arrives late/leaves early. Takes extended time for breaks or lunch. Has unexcused absences. Present in area during unscheduled times or not in the area during scheduled times.	Arrives in area and is ready to start at scheduled time the majority of the rotation. Remains in area until instructor indicates work is done. Takes breaks and lunch when instructor indicates and mostly comes back on time.	Consistent attendance with no unexcused absences, arrives early or on time for shift. Breaks and lunch are taken when instructed and are for appropriate length of time. Communicates and works with instructor for upcoming conflicts in schedule.
Circle:	**2**	**4**	**5**

On time every day!

8. **Initiative/Motivation (PD 6, 12, 13)**	Seems unprepared for the day. Gives impression of being uninterested. Indicates would like to leave early, rather than study or complete additional tasks in section. Satisfied with "getting by" rather than learning material or skill.	Arrives prepared. Has looked ahead and studied what will be covered that day. Asks for additional activities when assigned activities are complete. Concerned with learning info/skills needed to work as an MLS not just to achieve a good grade. Uses section texts, references, resources to supplement learning.	Proceeds on own, i.e. starts a bench, starts setting up area, performs QC or daily maintenance without being prompted, when appropriate. Helped with department or section project in addition to student assignments.
Circle:	**2**	**4**	**5**

9. **Responsibility (PD 7, 8)**	Does not accept responsibility for own work. Can't accept being wrong. Offers excuses or deflects blame to others.	Accepts responsibility for own work; acknowledges errors and learns from them. Accepts constructive criticism of skills or behavior.	Accepts responsibility for own work and always seeks feedback to improve performance. Accepts constructive criticism of skills or behavior and uses in positive manner for improvement.
Circle:	**2**	**4**	**5**

10. **Interpersonal/ Communication Skills (PD 9) (PLO #2)**	Unable to clearly convey ideas verbally or in writing. Dismissive or patronizing towards lab staff. Questions staff credentials. Communicates in confrontational manner. Brings cold or negative atmosphere to the section.	Effectively conveys and receives ideas; responds appropriately. Is respectful of instructors and other lab staff. Appreciates instructors' knowledge, skills, and experience. Interactive. Communicates in a positive and timely manner with instructors and lab staff. Contributes to a positive work environment.	Unsolicited positive feedback received from non-instructors or people outside section, i.e. students communication skills with staff, visitors, patients is exceptional; offers diplomatic comments in difficult conversations.
Circle:	**2**	**4**	**5**

Great at asking for help and asking questions!

11. **Ability to work in clinical lab environment/handle stressful situations (PD 3, 4)**	Seems tired frequently. Frustrates easily. Has difficulty coping with work volume, people, environment. Has difficulty adjusting to variations or changes.	Alert, interactive. "Goes with the flow." Performs well in a busy lab environment. Deals well with variety of personalities. Demonstrates patience with instructors and staff, procedural processes or wait times. Demonstrates flexibility and ability to adapt to change.	Demonstrated calmness, flexibility in unusual situations, i.e. very high work volume, instrument or computer downtime.
Circle:	**2**	**4**	**5**

12. **Adherence to the American Society for Clinical Laboratory Science (ASCLS) Professional Code of Ethics (PLO #5)**	Identifies central ethical issues and uses them as a basis for ethical evaluation.	Formulates an implementation plan that delineates the execution of the decision.	Formulates an implementation plan that delineates the execution of the decision and that evidences a thoughtful reflection on the benefits and risks of action. Sees "big picture." Conveys understanding of how own actions have consequences and impacts patient care.
Circle:	**2**	**4**	**5**

Section II Total Numeric Score: 60 **/60** **Corresponding Letter Grade:** A 100%

(Passing score is ≥80%)

100%

Comments: Did a great job in our microbiology lab!

SECTION III: OVERALL EVALUATION

1. Do you have any reason to question this student's credibility?
   _____Yes ___✓___No

Comment required if "Yes" checked: _____

2. Has this student completed and met all requirements of the section clinical checklist?
   ___✓___Yes _____No

Comment required if "No" checked; List objectives to be completed/corrected: _____

3. Do you recommend this student for certification eligibility in this area?
   ___✓___Highest recommendation without reservation
   _____Recommend
   _____Recommend with reservations
   _____Do not recommend

Comment required: Very professional. knows when to ask for help. Kind and helpful to OUR Staff! He was even able to CORRect me when I was WRong so he is very knowledgable!

4. Would you recommend this student to a prospective employer?
   ___✓___Highest recommendation without reservation
   _____Recommend
   _____Recommend with reservations
   _____Do not recommend

Comment required: As stated above, professional and helpful. Good teamwork skills. Would definitely be an asset to a lab team!

Please review completed evaluation with student. Both student and instructor have the opportunity to note any final thoughts below.

Student Comments: - Would help if bench tech assigned is informed of having a CLS student outside of just writing on schedule.
- Learned alot and appreciative of the opportunity.

Instructor Comments:
Thank you for all of your hard work! We were glad to have taught you about the micro lab and wish you good luck!

Was this evaluation discussed with student? ✓ Yes _____ No

Fran Yi — 9/16/2021
Clinical Site Instructor Signature — Date

Conor Bushel — 9/16/21
Student Signature — Date

SECTION IV: FINAL GRADE

NOTE: This section to be completed by SLU Programmatic Faculty.

Microbiology Grade:	Weighted Value	Numeric Value	Letter Grade
Work Skills Evaluation:	75%	100%	A
Professional Development Evaluation:	25%	100%	A
Final Grade:		100%	A

BLS 1150 Foundations of MLS Laboratory
Lab Module 5 - Hematology (Fall 2021)

WEEK 7: HEMATOLOGY LABORATORY WORKSHEET

Name: [redacted] Score: 15 /15

Place the Slide Letter here: EE

Fill in the table below by performing a white blood cell differential on 25 WBCs and calculating the percentage of each cell type. (5 pts.)

WHITE BLOOD CELL TYPE	# OF CELLS COUNTED	% CALCULATED (# CELLS COUNTED X 4 = %)	NORMAL REFERENCE RANGE	INTERPRETATION (High, Normal, Low)	CORRELATION WITH % AS SHOWN ON THE BOARD
1. SEGMENTED NEUTROPHIL	8	32 %	50-65%	Low	30%
2. LYMPHOCYTE	13	52 %	20-40%	High	34%
3. MONOCYTE	—	—	4-10%	—	2%
4. EOSINOPHIL	4	16 %	1-3%	High	34%
5. BASOPHIL	—	—	0-1%	—	—
TOTAL	25	25 x 4 = 100%			

6. Do your WBC differential counts for each cell type match the counts written on the board by =/- 2%? (0.25 points) my segmented neutrophil, monocytes, and basophil were within the 2% range but my lymphocyte and Eosinophil counts were off.

Perform platelet estimation in the thin area of slide where the RBCs barely touch.

7. Platelets counted/field: # 21 X 20,000 = 420,000 /mm³ (0.5 points)

8. Do your platelet counts correlate with the counts written on the board by +/- 20,000? (0.25 points)
300,000 was the actual So mine was high.

9. If your WBC differential count and platelet count do not correlate with the results shown on the board, list two ways to correct the discrepancy: (2 points)

- Only counted 25 WBC's instead of 100's or thousands
- I could've counted too thick of an area of cells for platelets

10. Based upon your results, would you be able to report out the results? (0.25 points)
Based upon my results alone we couldn't write a report due to only counting 25 WBC.

11. Based upon your results, what might your patient be suffering from? (0.25 points)
Allergies or parasitic infection.

MATCHING: Match the white blood cell type on the left with the description that fits it best from the right. (5 pts.) (Obj., tax I)

E	12. Neutrophil	A. Smallest WBC and has no granules
C	13. Basophil	B. Largest WBC with a bi-lobed nucleus
A	14. Lymphocyte	C. WBC contains large purple or black granules
B	15. Monocyte	D. WBC contains large orange-red granules
D	16. Eosinophil	E. WBC contains multi-lobed nucleus & small pink granules

D 17. What type of stain is used to better visualize the cells and to aid in differentiating the types of white blood cells? (0.5 points)

A. Calcolfuor white stain
B. Gram stain
C. Kova stain
D. Wright's stain

D 18. Manual WBC Differentials are performed using the ____ objective lens. (0.5 points)

A. 4X
B. 10X
C. 40x
D. 100X

D 19. Platelet counts are performed using the ____ objective lens. (0.5 points)

A. 4X
B. 10X
C. 40x
D. 100X

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #4): Students will integrate knowledge of laboratory theory into practice		
Introduce**	**Reinforce****	**Master****
• Follows workflow protocol utilizing procedures/operating manuals and/or verbal directions from the instructor.	• Interprets laboratory results.	• Evaluates pre-analytical, analytical, and post-analytical laboratory processes alongside the patient's reported physiologic condition to assess the reliability of test results.

**IMPORTANT NOTES: The ratings, identified by the column headings, are of increasing complexity moving across the table (from left to right).

SAINT LOUIS UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM
PERFORMANCE EVALUATION AND ROTATION CHECKLIST

Student: [redacted] *Date:* 11/10/2021

Section/Rotation: Hematology and Coagulation

Evaluator(s): [redacted]

Clinical Site(s): [redacted]

Results of the evaluation and checklist will comprise 100% of the student's final grade for that clinical rotation.

The purpose of the work skills checklist is to master skills required by the Medical Laboratory Science Program in the clinical setting.

The purpose of the professional development evaluation is to provide feedback to the student on their performance as a laboratory professional. The evaluation is designed to be similar to and thus prepare the student for the type of employee appraisal process the student will encounter when employed.

This packet should be completed, reviewed with the student, signed for acknowledgement of receipt, and submitted to the program director no more than one business day after the student has completed the rotation.

For SLU Program Coordinator's use only:

Grade:	Numeric Value	Letter Grade
Work Skills Evaluation:	91%	A-
PD Evaluation:	100%	A
Final Grade:	93%	A

SECTION I: WORK SKILLS EVALUATION

At the completion of MLS 4740 Clinical Hematology Practicum, the student will have successfully completed the following:

1. Perform hematological and coagulation testing with good technique, paying attention to detail and quality.
2. Maintain and operate instrumentation reliably and generate quality results.
3. Strictly adhere to written procedures and accept verbal technical direction.
4. Use proper quality control measures.
5. Treat laboratory results and issues confidentially.
6. Maintain technical competency and emotional stability in times of stress or tension.
7. Initiate learning new techniques and demonstrate persistence in developing skills.
8. Communicate legibly on paper.
9. Practice safety at all times.
10. Communicate confidently with other professionals, students, and patients.
11. Organize for priority and efficiency.
12. Recognize unusual or abnormal results and consult an experienced technologist.

Students will collaborate with their instructors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor will comply with the laboratory's standards. Students will further meet the laboratory standards for work habit skills, patient confidentiality, safety, waste disposal, and work area maintenance.

Students should make every effort to observe or participate in performing alternative or rarely performed tests. Performance and/or observations of all competencies should be documented with the date and initials of the instructor.

Students must achieve an 80% score in the Work Skills practical rotation.

Instructors: Please adjust "Goals" and numbers of tests to fit your institution's workload, situation, and your convictions of what is satisfactory proficiency for your laboratory situation.

MLS 4740: CLINICAL HEMATOLOGY PRACTICUM

LEVELS OF COMPETENCY

LEVEL 1 DISCUSSED: Process was discussed, principle explained, and the student acknowledged an understanding of the process or principle.

LEVEL 2 DEMONSTRATED: Process has been performed and demonstrated by the practicum instructor. Student has observed the demonstration and has been allowed to ask questions as needed. The student acknowledges an understanding of the process or principle by verbally explaining the process or principle back to the practicum instructor.

LEVEL 3 APPROACHES EXPECTATIONS: Student has practiced the process under the direction and maximum supervision of the practicum instructor. The student demonstrates a minimal knowledge of how to perform the process or task and often requires assistance or direction. The student's performance does not meet the level of competency required by the laboratory for that task or process. 3 points

LEVEL 4 MEETS EXPECTATIONS: The student can perform the process under the direct supervision of the practicum instructor with minimal error. The student's performance meets the level of competency required by the laboratory for that task or process. 4 points

LEVEL 5 EXCEEDS EXPECTATIONS: The student can perform the process satisfactorily with only minimum or non-direct supervision by the practicum instructor. The student's performance is accurate and in-depth details of process can be provided. 5 points

N/A NOT AVAILABLE/APPLICABLE: Due to the nature of the laboratory, the student does not have access to the equipment/test method.

OBJECTIVE	EXPECTED COMPETENCY	EARNED SCORE	INDICATE IF ONLY: DISCUSSED (LVL 1) DEMONSTRATED (LVL 2) N/A	INSTRUCTOR INITIALS	DATE
HEMATOLOGY					
Pre-Analytical					
• Accepts into the laboratory appropriate and correctly labeled specimens for testing	4	5		SH	11-10-21
• Takes appropriate action if specimen is unacceptable	4	5		SH	
• Correctly processes specimens for testing	4	5		SH	
• Maintains sample identity and worksheet documentation throughout processing	4	5		SH	
Quality Control					
• Runs QC as directed and correctly interprets results	4	4		SH	11-10-21
• Performs and documents daily and/or weekly maintenance	4	4		SH	
• Recognizes QC failure and notifies trained personnel and initiates corrective action	4	4		SH	
• Applies the "Rule of Three"	4	4		SH	
Analytical					
• Follows written/verbal directions for instrument operation	4	4		SH	11-10-21
• Recognizes basic instrument problems and notifies trained personnel if necessary	4	4		SH	
• Define terms and calculations when appropriate for CBC parameters	4	4		SH	
• Prepare acceptable peripheral blood smears for staining	4	5		SH	
• Perform normal differential counts which correlate with department results within established guidelines (minimum 20)	4	4		SH	

• Correlates CBC results of RBC, WBC, morphology, and platelets with peripheral smear	4	4		SH	11-10-21
• Report RBC morphology (normocytic/normochromic, microcytic/hypochromic, etc)	4	4		SH	
• Identify morphology such as polychromasia, poikilocytosis, anisocytosis, and RBC inclusions	4	4		SH	
• Correct WBC counts for nRBCs	4	4		SH	
• Perform abnormal differential counts which correlate with department results within established guidelines (minimum 20)	3	4		SH	
• Identify lymphoid and myeloid morphological stages of maturation such as those seen in leukemias	3	4		SH	
• Estimate WBC and platelet counts from a Wright-stained smear and agree with laboratory department results within established guidelines	4	4		SH	
• Correctly perform ESR	4	5		SH	
Non-Compulsory Procedures **Note: The following analytical testing is not mandatory as we recognize that not all labs consist of the same testing menu, if you do perform any of the following or others not listed, please assess the student as applicable. The items may still be discussed or observed with the student as deemed fit.**					
• Perform manual reticulocyte counts and agree with the laboratory department results within established guidelines	4	N/A	NA		11-10-21
• Correctly performs sickle cell screening	4	N/A	NA		
• Correctly perform cell counts for synovial, serous, and/or cerebrospinal (CSF) fluids and agree with the laboratory department results within established guidelines	3	5	4	SH	
• Correctly perform differentials for synovial and/or CSF fluids and agree with the laboratory department results within established guidelines	3	5	4	SH	
• Perform other testing not listed above within established guidelines. Tests may include, but not limited to the following (please indicate which tests were performed):					
• Hemoglobin Electrophoresis	3	N/A	NA	SH	11-10-21
• Bone Marrow Exam	3	3	3	SH	
• LAP Stain	3	N/A	NA	SH	
• Manual Eosinophil Count	3	N/A	NA		
• Fetal Cell Stain	3	N/A	NA		
• Plasma Hemoglobin	3	N/A	NA		
• Haptoglobin	3	N/A	NA		
• Carboxyhemoglobin	3	N/A	NA		
• Other (please list):	3	N/A	N/A		
Immunological Kit Testing **Note: Each lab may have kit testing (i.e. Infectious mono, pregnancy, Influenza, etc) set up in different areas of the lab. In recognition of this, please complete the following if the student performed kit testing within this department.**					
Tests performed on Kits in this department (please list): HCG, Mono, Rom					
• Identifies and uses appropriate sample for kit testing	4	5	~~NA~~	SH	11-10-21
• Correctly follows procedural directions and accurately performs testing	4	5	~~NA~~	SH	

Post-Analytical					
• Identifies valid results and can spot inconsistencies or questionable ones	4	4	SH	SH	11-10-21
• Identifies panic values and notifies trained personnel	4	4		SH	
• Identifies possible sources of error and initiates resolution	4	4		SH	
• Reports results without error	4	4		SH	
• Handles documents, record-keeping, and reports per policy	4	4		SH	
• Recognizes and correlates age values with CBC results	4	4		SH	
• Interprets histograms/scatterplots	3	4		SH	
• Correlates CBC and differential results with major pathological conditions	4	4		SH	
COAGULATION					
Pre-Analytical					
• Accept for testing, appropriate and correctly labeled specimens for testing	4	5		SH	11/10
• Correctly processes specimens for testing	4	5		SH	
• Maintains sample identity and worksheet documentation throughout processing for send-out or analyses	4	5		SH	
Quality Control					
• Runs QC as directed and correctly interprets results	4	5		SH	
• Performs and documents daily and/or weekly maintenance	4	5		SH	
• Recognizes QC failure, notifies trained personnel, and initiates corrective action	4	5		SH	
Analytical					
• Follows written/verbal directions for instrument operation	4	5		SH	
• Relates coagulation analysis with test methodology	4	5		SH	
• Correctly processes coagulation samples	4	5		SH	
• Recognizes basic instrument problems and notifies trained personnel if necessary	4	5		SH	
• Correctly performs PT/INR and APTT assays	4	5		SH	
• Correctly perform D-Dimer/FDP assays	4	5		SH	
Non-Compulsory Procedures **Note: The following analytical testing is not mandatory as we recognize that not all labs consist of the same testing menu, if you do perform any of the following or others not listed, please assess the student as applicable. The items may still be discussed or observed with the student as deemed fit.**					
• Correctly performs Thrombin Time or Fibrinogen assay	4	5		SH	
• Perform other testing not listed above within established guidelines. Tests may include, but not limited to the following (please indicate which tests were performed):					
◦ Mixing Studies	3	N/A		N/A	
◦ Factor VIII or IX assays	3				
◦ Factor X Chromogenic assay	3				
◦ Other specific factor assays	3				
◦ Platelet Aggregation Studies	3				
◦ Factor V Leiden	3				
◦ VWF activity	3				
◦ Lupus anticoagulant	3				

• Other (please list):	3	N/A			
Post-Analytical					
• Identifies valid results and can spot inconsistencies or questionable ones	4	5			14/10
• Identifies panic values and notifies trained personnel	4	5			
• Identifies possible sources of error and initiates resolution	4	5			
• Reports results without error	4	5			
• Handles documents, record-keeping, and reports per policy	4	5			
General Lab Skills					
• Organizes and prioritizes workload	4	5			
• Follows required documentation protocol (checklists, logs, QC)	4	5			
• Work area to include microscope left clean and countertops disinfected	4	5			
• Supplies restocked or staff notified of low levels	4	5			
• Cite reference ranges for each test	4	5			
TOTAL NUMBER OF COMPETENCIES MET: (Passing score is ≥80%)		260/285			

260/285= 91%

Discipline	Instruments Utilized to Evaluate Work Practice Skills
Automated Hematology Instrumentation	DxH800
Automated Coagulation Instrumentation	Stago Evolution/Max
Immunological Kits	HCG, MonoRon

Comments:

SECTION II: PROFESSIONAL DEVELOPMENT EVALUATION

INSTRUCTIONS TO THE EVALUATOR:
Rate the student in each area by circling:
2 = Needs improvement. / Student is not performing as would be expected of an entry level MLS.
4 = Meets expectations. / Student is currently performing as an entry level MLS to varying degrees.
5 = Exceptional. / Student's performance is well above what would be expected of an entry level MLS.

- ➔ Comments can be made as needed at the end of this section. Please be specific in illustrating why rating is assigned especially if scoring as "needs improvement".
- ➔ Ratings of 2 may require remedial work by the student at the instructor's discretion and will require a meeting with the program coordinator

Minimum grade of 80% in Professional Development is required to successfully complete the rotation.

COGNITIVE/ACADEMIC PERFORMANCE:

1. **Knowledge of the subject** **Circle:**	Can relate minimal information outlined in the learning objectives. **2**	Demonstrates good theoretical knowledge of the material covered. Can verbally relate the information outlined in the learning objectives. **4**	Demonstrates unusual depth of understanding with productive discussion and probing questions. Grasps theoretical concepts usually understood after >1 year experience. **5**
2. **Application of knowledge to practice** **Circle:**	Has difficulty translating knowledge to practice. Unable to proceed once directions are given. **2**	Applies knowledge to bench work. Demonstrates ability to proceed based on initial findings, i.e. can perform procedure without prompting. Demonstrates appropriate decision making and problem solving skills for entry level MLS. **4**	Can extrapolate knowledge and apply to low volume or seldom seen specimens or situations. **5**
3. **Judgment: Problem recognition and resolution (PLO #2, #4)** **Circle:**	Has difficulty distinguishing normal from abnormal situations. Doesn't recognize or proceed appropriately in problem situations, i.e. problem specimen or QC out of range. **2**	Recognizes normal from abnormal. Recognizes problem specimens with ease. Proceeds appropriately in each case. Recognizes situations that require consultation with instructor and asks appropriate questions. **4**	Exceptional at problem identification and solving. Instructor would feel comfortable having student perform their own family member's lab samples with no worry. **5**

PSYCHOMOTOR/BENCH PERFORMANCE:

4. **Bench Work: Skills and pace**	Everyday bench skills need improvement. Hasn't developed work pace that would meet expected turn-around-times. OR Sacrifices accuracy for speed: makes mistakes, misses things by going too fast.	Does good work at the bench. Has good manual dexterity. Demonstrates efficiency/balances speed and accuracy. Can maintain appropriate work pace while producing accurate results.	Demonstrates excellent multitasking skills usually seen in experienced techs.
Circle:	**2**	**4**	**5**

5. **Safety Practices**	Does not carry out safety practices at all times, student disregarded or had inconsistent adherence to safety rules.	Observes safety practices including wearing lab coat/gloves the majority of the time with only occasional lapses; has no food in the lab; proper disposal of waste in appropriate bins.	Observes safety practices at all times with no prompting to include wearing lab coat/gloves, no food in the lab, and appropriate disposal of waste.
Circle:	**2**	**4**	**5**

AFFECTIVE/TEAM PERFORMANCE:

6. **Professionalism/ Maturity (PD 2, 5, 11) (PLO #4)**	Does not follow policies set forth by clinical site. Complains about policies and expectations.	Follows all policies at all times without complaint. Focused. Engaged in learning activities and lab environment. Is a good representative of the laboratory profession.	Unsolicited positive feedback received from non-instructors or people outside section, i.e. student's professional behavior is above and beyond.
Circle:	**2**	**4**	**5**

7. **Attendance/Punctuality (PD 1)**	Arrives late/leaves early. Takes extended time for breaks or lunch. Has unexcused absences. Present in area during unscheduled times or not in the area during scheduled times.	Arrives in area and is ready to start at scheduled time the majority of the rotation. Remains in area until instructor indicates work is done. Takes breaks and lunch when instructor indicates and mostly comes back on time.	Consistent attendance with no unexcused absences, arrives early or on time for shift. Breaks and lunch are taken when instructed and are for appropriate length of time. Communicates and works with instructor for upcoming conflicts in schedule.
Circle:	**2**	**4**	**5**

8. **Initiative/Motivation (PD 6, 12, 13)**	Seems unprepared for the day. Gives impression of being uninterested. Indicates would like to leave early, rather than study or complete additional tasks in section. Satisfied with "getting by" rather than learning material or skill.	Arrives prepared. Has looked ahead and studied what will be covered that day. Asks for additional activities when assigned activities are complete. Concerned with learning info/skills needed to work as an MLS not just to achieve a good grade. Uses section texts, references, resources to supplement learning.	Proceeds on own, i.e. starts a bench, starts setting up area, performs QC or daily maintenance without being prompted, when appropriate. Helped with department or section project in addition to student assignments.
Circle:	**2**	**4**	**5**

9. **Responsibility (PD 7, 8)**	Does not accept responsibility for own work. Can't accept being wrong. Offers excuses or deflects blame to others.	Accepts responsibility for own work; acknowledges errors and learns from them. Accepts constructive criticism of skills or behavior.	Accepts responsibility for own work and always seeks feedback to improve performance. Accepts constructive criticism of skills or behavior and uses in positive manner for improvement.
Circle:	**2**	**4**	**5**

10. **Interpersonal/ Communication Skills (PD 9) (PLO #2)**	Unable to clearly convey ideas verbally or in writing. Dismissive or patronizing towards lab staff. Questions staff credentials. Communicates in confrontational manner. Brings cold or negative atmosphere to the section.	Effectively conveys and receives ideas; responds appropriately. Is respectful of instructors and other lab staff. Appreciates instructors' knowledge, skills, and experience. Interactive. Communicates in a positive and timely manner with instructors and lab staff. Contributes to a positive work environment.	Unsolicited positive feedback received from non-instructors or people outside section, i.e. students communication skills with staff, visitors, patients is exceptional; offers diplomatic comments in difficult conversations.
Circle:	**2**	**4**	**5**

11. **Ability to work in clinical lab environment/handle stressful situations (PD 3, 4)**	Seems tired frequently. Frustrates easily. Has difficulty coping with work volume, people, environment. Has difficulty adjusting to variations or changes.	Alert, interactive. "Goes with the flow." Performs well in a busy lab environment. Deals well with variety of personalities. Demonstrates patience with instructors and staff, procedural processes or wait times. Demonstrates flexibility and ability to adapt to change.	Demonstrated calmness, flexibility in unusual situations, i.e. very high work volume, instrument or computer downtime.
Circle:	**2**	**4**	**5**

12. **Adherence to the American Society for Clinical Laboratory Science (ASCLS) Professional Code of Ethics (PLO #5)**	Identifies central ethical issues and uses them as a basis for ethical evaluation.	Formulates an implementation plan that delineates the execution of the decision.	Formulates an implementation plan that delineates the execution of the decision and that evidences a thoughtful reflection on the benefits and risks of action. Sees "big picture." Conveys understanding of how own actions have consequences and impacts patient care.
Circle:	**2**	**4**	**5**

Section II Total Numeric Score: 60 **/60** ___ **Corresponding Letter Grade:** 100%

(Passing score is ≥80%)

60/60 = 100%

Comments:

SECTION III: OVERALL EVALUATION

13. Do you have any reason to question this student's credibility?

_____Yes _____X_____No

Comment required if "Yes" checked:

14. Has this student completed and met all requirements of the section clinical checklist?

_____X_____Yes _____No

Comment required if "No" checked; List objectives to be completed/corrected:

15. Do you recommend this student for certification eligibility in this area?

_____X_____Highest recommendation without reservation
_____Recommend
_____Recommend with reservations
_____Do not recommend

Comment required:

Hannah is great at prioritizing and understands all concepts.

16. Would you recommend this student to a prospective employer?

_____X_____Highest recommendation without reservation
_____Recommend
_____Recommend with reservations
_____Do not recommend

Comment required:

Any location would love to work with Hannah.

Please review the completed evaluation with the student. Both student and instructor have the opportunity to note any final thoughts below.

Student Comments:

Instructor Comments:

Hannah worked very hard during this rotation. She picked all concepts up well.

Was this evaluation discussed with student? X Yes _____ No

Samantha Henderson — 11/10/2021

Clinical Site Instructor Signature — Date

Hannah Pecaro — 11-10-21

Student Signature — Date

SECTION IV: FINAL GRADE

NOTE: This section to be completed by SLU Programmatic Faculty.

Hematology Grade:	Weighted Value	Numeric Value	Letter Grade
Work Skills Evaluation:	75%	91%	A-
Professional Development Evaluation:	25%	100%	A
Final Grade:		93%	A

Program Assessment Rubric

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #1): Students will demonstrate respect for human life with regard to all aspects of laboratory testing.		
Introduce**	**Reinforce****	**Master****
• Student is not performing as would be expected of an entry level MLS.	• Student is currently performing as an entry level MLS to varying degrees.	• Student's performance is well above what would be expected of an entry level MLS.

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #2): Students will communicate accurate laboratory information to members of the healthcare team.		
Introduce**	**Reinforce****	**Master****
• Documents work-ups and decisions clearly, legibly, and concisely per the institution's procedures	• Evaluate the above information to prepare preliminary and final reports using established laboratory protocols with minimal error.	• Assess panic values and correctly notifies appropriate personnel with documentation.

****IMPORTANT NOTES:** The ratings, identified by the column headings, are of increasing complexity moving across the table (from left to right).

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #3): Students will apply critical reasoning to solve laboratory-based case studies.		
Introduce**	**Reinforce****	**Master****
• Recognizes normal from abnormal results.	• Chooses appropriate next steps in each case.	• Proposes solutions to laboratory-based case study problems with justification.

****IMPORTANT NOTES:** The ratings, identified by the column headings, are of increasing complexity moving across the table (from left to right).

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #4): Students will integrate knowledge of laboratory theory into practice		
Introduce**	**Reinforce****	**Master****
• Follows workflow protocol utilizing procedures/operating manuals and/or verbal directions from the instructor.	• Interprets laboratory results.	• Evaluates pre-analytical, analytical, and post-analytical laboratory processes alongside the patient's reported physiologic condition to assess the reliability of test results.

****IMPORTANT NOTES:** The ratings, identified by the column headings, are of increasing complexity moving across the table (from left to right).

MEDICAL LABORATORY SCIENCE (MLS)		
Program Learning Outcome (PLO #5): Students will adhere to the principles found in the American Society for Clinical Laboratory Science (ASCLS) Professional Code of Ethics		
Introduce**	**Reinforce****	**Master****
• Identifies central ethical issues and uses them as a basis for ethical evaluation.	• Formulates an implementation plan that delineates the execution of the decision	• Formulates an implementation plan that delineates the execution of the decision and that evidences a thoughtful reflection on the benefits and risks of action.

****IMPORTANT NOTES:** The ratings, identified by the column headings, are of increasing complexity moving across the table (from left to right).

LEARNING OUTCOME: PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.
Artifact 1 - MLS 4550 Medical Bacteriology Final Unknown Laboratory Report form.

Benchmark: An average of 85% of the students will achieve a ranking of "introduce" or higher.

Number of students: n = 12

RUBRIC RANKING	Introduce	Reinforce	Master
RANKING DESCRIPTION	Documents work-ups and decisions clearly, legibly, and concisely per the institution's procedures	Evaluate the above information to prepare preliminary and final reports using established laboratory protocols with minimal error.	Assess panic values and correctly notifies appropriate personnel with documentation.
Enter hash marks of ranking distribution	𝍸 𝍸 II	𝍸 II	𝍸
Enter % of student who accomplished each ranking	100%	58%	42%

LEARNING OUTCOME: PLO #2: Students will communicate accurate laboratory information to members of the healthcare team.

Artifact 2- MLS-4800 Clinical Microbiology Practicum / Work Skills Evaluation Form

Benchmark: An average of 85% of the students will achieve a ranking of "introduce" or higher.

Number of students: n = 7

RUBRIC RANKING	Introduce	Reinforce	Master
RANKING DESCRIPTION	Documents work-ups and decisions clearly, legibly, and concisely per the institution's procedures	Evaluate the above information to prepare preliminary and final reports using established laboratory protocols with minimal error.	Assess panic values and correctly notifies appropriate personnel with documentation.
Enter hash marks of ranking distribution	𝍸 II	𝍸 II	𝍸 II
Enter % of student who accomplished each ranking	100%	100%	100%

LEARNING OUTCOME: PLO #4: Students will integrate knowledge of laboratory theory into practice

Artifact 1 - BLS 1150 Foundations of Medical Laboratory Science Laboratory / Hematology Laboratory exercise.

Benchmark: An average of 85% of the students will achieve a ranking of "introduce" or higher.

Number of students: n = 5

RUBRIC RANKING	Introduce	Reinforce	Master
RANKING DESCRIPTION	Follows workflow protocol utilizing procedures/operating manuals and/or verbal directions from the instructor.	Interprets laboratory results.	Evaluates pre-analytical, analytical, and post-analytical laboratory processes alongside the patient's reported physiologic condition to assess the reliability of test results.
Enter hash marks of ranking distribution	IIII	IIII	COULD NOT DETERMINE
Enter % of student who accomplished each ranking	100%	100%	

LEARNING OUTCOME: PLO #4: Students will integrate knowledge of laboratory theory into practice

Artifact-2- MLS 4740 Clinical Hematology / Work Skills Evaluation

Benchmark: An average of 85% of the students will achieve a ranking of "mastery" or higher.

Number of students: n = 7

RUBRIC RANKING	Introduce	Reinforce	Master
RANKING DESCRIPTION	Follows workflow protocol utilizing procedures/operating manuals and/or verbal directions from the instructor.	Interprets laboratory results.	Evaluates pre-analytical, analytical, and post-analytical laboratory processes alongside the patient's reported physiologic condition to assess the reliability of test results.
Enter hash marks of ranking distribution	𝍸 II	𝍸 II	𝍸 II
Enter % of student who accomplished each ranking	100%	100%	100%