Self-Study Document
For the Evaluation of the
Medical Laboratory Sciences Program

WEBER STATE UNIVERSITY

2006/2007 to 2012/2013

Executive Summary:
Department of Medical Laboratory Sciences
2006/2007 to 2012/2013

A. Program Overview:

The Medical Laboratory Sciences program is located within the Dr. Ezekial R. Dumke College of Health Professions. It provides undergraduate education in Medical Laboratory Sciences for students wishing to complete degrees that include the MLS Laboratory Professional (Track 1) Bachelor of Sciences Degree, MLS Pre-professional (Track II) Bachelor of Sciences Degree, MLS Associate of Applied Sciences Degree, and a Clinical Laboratory Assistant Certificate. It also serves students seeking MLS courses for continuing education, personal interest, or certification examination preparation.

B. Mission Statement:

The mission of the Weber State University Medical Laboratory Sciences (MLS) program is to educate individuals to become ethical, customer service oriented, and high quality medical laboratory practitioners. These graduates will improve the health, quality of life, and wellbeing of those individuals being served. The MLS program will serve all its communities by providing medical laboratory education through the continual development of a cost-effective, contemporary curriculum with learning experiences using both traditional delivery methods as well as outreach distance learning programs.

C. Curriculum:
1. Types of degrees and certificates offered:
   - Associate of Applied Science (AAS) in MLS
   - Bachelor of Science (BS) in MLS Track I
   - Bachelor of Science (BS) in MLS Track II
   - Clinical Laboratory Assistant (CLA) Certificate
2. Numbers and types of courses offered:
   a. 22 different courses offered in the program curriculum both online and on campus
   b. 1 course fulfills the required quantitative literacy requirement for an AAS degree
   c. 4 courses are supervised clinical experience, completed at a clinical affiliate
   d. 5 courses in continuing education
3. Student constituents served by the program:
   a. <u>Description of the students:</u> For the years examined in this self-study (2006-07 to 2011-12) the MLS program has a very solid constituency for a relatively small program. The major was approved by the Utah Board of Regents in 1973 and the faculty feels it has emerged as one of the best medical laboratory sciences programs in the country. The online Clinical Laboratory Sciences (CLS) program began in 1999 and was the first in the

world to offer a BS in CLS as a dedicated online option. Three years later, the department was the first in the world to offer an AAS in CLS online. In 2011, the name of the department was changed from Clinical Laboratory Sciences to Medical Laboratory Sciences to reflect changes at the national level in the certification agencies for the discipline.

The MLS programs are organized into a "ladder" format, with the four-year curriculum divided into two programs, the AAS program, followed by the BS program. Student constituents served by the program now include four different groups, each with slightly different needs and goals:

    i. Students seeking an Associates of Applied Sciences (AAS) degree in MLS

    ii. Students pursuing the laboratory professional Track I option Bachelor of Sciences degree in MLS

    iii. Students pursuing the pre- professional Track II option Bachelor of Sciences degree in MLS

    iv. Students seeking a Clinical Laboratory Assistant (CLA) Certificate

b. Student data (*see Appendix A for a statistical summary of the six-year student data.)* The following are observations and trends seen in this data:

    i. Student Credit Hour Production: the program generated a fairly constant rise in student credit hours (SCHs) over the past six years, averaging 4983 SCHs annually (with a low of 3,921 in 2006-07 SCHs, then rising significantly to highs of 4,669 SCHs in 2008-09, 5,341 SCHs in 2009-10, 5,741 SCHs in 2010-11 and a high of 5,230 SCHs in 2011-12. Enrollment remained high for all courses and indicated good and steadily increasing student demand.

    ii. Student Populations: The overall composition of the student population has remained constant with a fairly equal number of students graduating with an AAS degree as with a BS degree.

    iii. Graduates: The number of annual graduates in the MLS Program in the last six years has steadily increased from 36 and 66 for an AAS degree, and from 38 and 65 for a BS degree. The majority of this growth can be attributed to increase enrollment in the online programs.

    iv. Gender Demographics: The gender of declared majors in the program is essentially a 2:1 ratio of females to males for most years evaluated, with a 1:1 ration being recorded for the 2006-07 year. The medical laboratory professions are female-dominated and, in the aggregate, are representative of the U.S. population.

4. Site Locations for Teaching Courses:

There is one primary location where the program's courses are taught:

a. WSU-Ogden campus
b. Clinical affiliates for MLS online students (*See Appendix E for a list of clinical sites that have affiliation agreements to provide laboratory training for MLS online students.*)

5. Allocation of Resources for Curriculum Delivery:

We have a small faculty, only 5.22 Full Time Equivalent (FTE), whose administrative duties are split between the department chair and the program director. Full time faculty teach 100% of required courses on campus. The online courses are taught both by full time faculty and by adjuncts, with adjuncts teaching a total of 1.73 FTEs. In 2008-09, the department received funding from the University for a new faculty line, which significantly reduced faculty teaching load. In 2010-11 two new staff positions were added using department funding, an AAS online advisor in 2012-13, a part-time practicum coordinator staff position.

6. Curriculum Planning and Review Process:

All members of the MLS faculty are involved in curriculum planning, meeting weekly to discuss issues and concerns related to curriculum. If changes are needed, the Program Director initiates a curriculum proposal for review by faculty, department, and other impacted departments, and then sends it to the appropriate College and University curriculum committees for review and Faculty Senate for final approval.

7. High Impact Learning Aspects of Curriculum:

MLS is primarily a laboratory specific discipline and the program provides students the opportunity to participate in off campus supervised clinical experiences, administered in conjunction with clinical faculty at WSU affiliated health care institutions. MLS 2256 and MLS 2257 are offered during the spring of the student's sophomore year and focus on overall laboratory competencies. MLS 4453 and MLS 4454 focus more on experiences associated with laboratory administrative functions. *(See Appendix H and I for the MLS 2256/2256 and MLS 4453/MLS 4454 competency evaluation checklists.)*

D. Student Learning Outcomes and Assessment:

The MLS department has developed eight program goals and applied each of the goals to a curriculum map and evidence of learning rubric for each of the program courses. Program goals are as follows: Upon successful completion of the Weber State University Medical Laboratory Science Program, a student should be able to:

1. **Knowledge Goal:** Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.
2. **Knowledge Goal:** Apply mathematical calculations to laboratory situations.

3. **Laboratory Skill:** Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.
4. **Laboratory Skill:** Correlate laboratory theory and terminology to practical laboratory work.
5. **Laboratory Skill:** Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.
6. **Diagnostic Skill:** Relate laboratory findings to common disease processes.
7. **Professionalism and Ethics:** Demonstrate professional conduct and ethical behavior.
8. **Communication Skill:** Demonstrate effective communication skills and behaviors with colleagues in the program and in a laboratory setting.

E. Academic Advising:
The MLS department actively advises each potential and current MLS student. The process used is based on whether the student is an on-campus or online student. Each of the faculty in the department serves as an academic advisor for campus students. For online students, there are 2.5 full time academic advisors. In November 2012, a survey was conducted by the department which consisted of 139 MLS students, both campus and online. (*See Appendix G for results of Academic Advisement Survey.*) In summary, 61% were very satisfied, 35% were satisfied and 3.4% were not satisfied with the quality of advising they have received from the MLS academic advisors.

F. Faculty:
  1. There are six full time and one part time faculty in the MLS Department:

- Scott Wright MS, M(ASCP)^{CM}, Professor & Department Chair
- Janet Oja, MHA, BS MLS(ASCP)^{CM}, Assistant Professor & Program Director
- Janice Thomas, MEd, MLS(ASCP), Assistant Professor
- Matthew Nicholaou, DrPH, MT(ASCP), Assistant Professor
- Ryan Rowe, BS, MLS(ASCP)^{CM}, Instructor
- Dan McEntire, BS, MLS(ASCP)^{CM}, Instructor
- Yasmen Simonian, PhD, MLS(ASCP)^{CM}, Dean of DCHP and Professor, teaches part time in the department

  2. There are nine adjunct faculty:

- Megan Maciel, BS MLS(ASCP)
- Julie Kakazu, BS MLS(ASCP)^{CM}
- Amy Kenyon, BS MLS(ASCP)
- Stephanie Schaible, MS MLS(ASCP)
- Cindi Kranek , BS MLS(ASCP)^{CM}
- Mary Hawse. BS MLS(ASCP)^{CM}
- Kendal Beazer, BS MLS(ASCP)^{CM}

- Mechelle Sargent , BS MLS(ASCP)^{CM}
- Lauren Scott, BS MLS(ASCP)

3. Programmatic/Departmental Teaching Standards: Teaching standards are determined by three sources: (1) student courses evaluations (2) yearly departmental reviews with each faculty and adjunct and (3) the College and University Rank and Tenure policies and procedures.

4. Diversity of Faculty: The depth and breadth of the expertise within the contract and adjunct faculty is very substantial and provides a tremendous advantage for the department and students as illustrated in the range of course offerings available. (*See Appendix B: Contract/Adjunct Faculty Profile for a list of the ethnic diversity of the department and the areas of expertise of each of the faculty and adjuncts*.)

5. Student and Faculty Statistical Summary

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Student Credit Hours Total	**3,921**	**4023**	**4,669**	**5,341**	**5,714**	**6,230**
Student FTE Total	**130.70**	**134.10**	**155.63**	**178.03**	**190.47**	**207.67**
Student Majors						
Clinical Laboratory Sciences	**379**	**290**	**331**	**437**	**447**	**507**
Program Graduates						
Associate Degree	44	36	49	64	56	66
Bachelor Degree	38	45	44	61	65	56
Student Demographic Profile	**379**	**290**	**331**	**437**	**447**	**507**
Female	190	196	227	285	307	343
Male	189	94	104	152	140	164
Faculty FTE Total	**6.79**	**7.6**	**7.36**	**6.68**	**6.95**	**6.83**
Adjunct FTE	1.59	1.91	1.57	1.46	1.73	.61
Contract FTE	5.2	5.69	5.79	5.22	5.22	6.22
Student/Faculty Ratio	**19.25**	**17.64**	**21.15**	**26.65**	**27.41**	**30.41**

E. Support Staff, Administration, Facilities, Equipment, and Library:
The departmental staff consists of (a) full time secretary, Chris Housley, (b) lab manager, Kent Criddle, (c) one full time online program academic advisor, Cindi Kranek and one half-time online program academic advisor, Teresa Reyes. (d) An additional staff position was recently created for a practicum coordinator, and the individual will be hired by December, 2012.

The administrative structure includes: (a) Department Chair, Scott Wright, (b) Program Director, Janet Oja, and (c) Online Coordinator, Julie Kakazu.

The department is currently making a significant effort to upgrade laboratory equipment to better simulate an actual clinical environment. During the academic year of 2012/2013, laboratory equipment purchases will total $128,000. These purchases will place at least one significant piece of equipment in each laboratory discipline, including a functional LIS system. During the academic year of 2013/2014, the department will budget approximately $125,000 for equipment purchase and upgrades.

F. Relationships with External Communities:
External communities consist of:

1. There are 135 hospitals and clinics that serve as clinical sites for MLS campus students to complete their second and third year practicum experiences. The majority of these sites are located throughout Utah, with a concentration

along the Wasatch Front. There are sites in the surrounding states of Nevada, Colorado, and Montana. (*See Appendix E for a list of the clinical practicum sites.*)

2. There are 750 clinical sites that have affiliation agreements to provide laboratory training for MLS online program students. These sites are located throughout the U.S. including ten international sites. (*See Appendix E for a list of clinical affiliates*).

3. Agencies, colleges, and companies through which the department has grants, contracts, or has received donations. (*See Appendix F for a list of grants, contracts, and donations.*)

Medical Laboratory Sciences Self-Study
Table of Contents

WSU Five-Year Program Review
Self-Study
2006/2007 to 2012/2013

Submitted November 15, 2012

Department/Program: Medical Laboratory Sciences

Semester Submitted: Fall 2012

Self-Study Team Chairs: Janet Oja - MLS Program Director
    Scott Wright - MLS Department Chair

Self-Study Team Members:

    Faculty from within DCHP College:
        Kraig Chugg – Department Chair, Health Sciences Department, Weber
            State University

    Faculty outside college, within WSU:
        Laine Berghout – Department Chair, Chemistry Department, Weber State
            University

    Faculty from WSU outside college:
        JoAnn Fenn - Professor and Division Head, Department of Medical
            Laboratory Sciences, University of Utah
        Bill Zundel - Associate Teaching Professor, Department of Microbiology
            and Molecular Biology, Brigham Young University

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A. Brief Introductory Statement

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Curriculum Map

Core Courses in Department/Program	Department/Program Learning Outcomes							
	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
MLS 1000 Core Clinical Laboratory Skills	1	0	2	1	1	1	2	1
MLS 1001 Online Orientation for AAS Degree*	0	0	0	0	0	0	0	0
MLS 1003 Introduction to Clinical Immunology	1	0	1	1	1	1	1	1
MLS 1113 Introduction to Laboratory Practices	4	1	4	3	2	4	1	1
MLS 1123 Principles of Hematology and Hemostasis	2	3	2	3	1	3	3	1
MLS 2211 Principles of Clinical Chemistry I	3	4	3	3	0	3	2	2
MLS 2212 Principles of Clinical Microbiology I	3	3	4	2	1	1	3	3
MLS 2213 Principles of Clinical Chemistry II	3	2	3	4	3	4	1	2
MLS 2214 Principles of Clinical Microbiology II	3	3	4	2	1	1	3	3
MLS 2215 Principles of Clinical Immunohematology	2	1	3	1	1	1	3	1

Core Courses in Department/Program	Department/Program Learning Outcomes							
	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
MLS 3301 Online Orientation for BS Degree*	0	0	0	0	0	0	0	0
MLS 3302 Advanced Laboratory Practices	4	4	0	3	3	0	0	3
MLS 3311 Advanced Clinical Immunohematology	3	3	4	3	3	2	4	3
MLS 3313 Advanced Hematology and Hemostasis	3	3	3	4	2	4	4	3
MLS 3314 Advanced Clinical Chemistry	3	3	4	3	3	3	3	2
MLS 3316 Advanced Clinical Microbiology and Molecular Diagnostics	3	3	3	3	3	2	3	3
MLS 4409 Clinical Correlation	3	0	0	3	3	3	3	3
MLS 4411 MLS Simulated Laboratory I	0	0	0	3	0	0	3	3
MLS 4412 MLS Simulated Laboratory II	0	0	0	3	0	0	3	3
MLS 4414 Laboratory Teaching and Supervision I	3	0	1	2	0	0	4	3
MLS 4417 Laboratory Teaching and Supervision II	3	0	1	2	0	0	4	3

	Department/Program Learning Outcomes							
Core Courses in Department/Program	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8
MLS 4801 Research Projects in MLS I	3	1	1	1	0	0	2	3
MLS 4802 Research Projects in MLS II	3	3	3	3	3	3	3	3

Key: Degree to which course met program goals: 0 = Not Applicable, 1 = Introduced, 2 =Emphasized, 3 =Utilized, 4=Assessed Comprehensively

*The MLS 1001 and 3301 online orientation courses are designed to provide the online MLS student with some keys to online success. The online environment is different than the traditional classroom in many respects. These courses were developed in response to student issues regarding online success. Knowing what to expect and having the resources and contacts available help minimize frustrations and allow the new online student to be successful in their coursework and degree completion. These two courses are specific to getting our online only students started and do not contain any MLS core learning material. These courses are designed to prepare the student for the online environment and specifics of the MLS program. Course components include: study and computer skills, learning styles, MLS student handbook, library tutorial, faculty introductions, contact and troubleshooting information, and academic advisement tailor-made specifically for AAS degree and BS MLS students online. MLS 1001 & MLS 3301 are identical courses, with the exception of academic advisement. MLS 1001 is geared toward the AAS degree, MLS 3301 towards the BS degree.

Summary Information (as needed)

D. Student Learning Outcomes and Assessment

Academic year 2011-12 was the 19th year the MLS program participated in the university's outcomes assessment program. It has developed its mission statement, identified eight central program goals, constructed a curriculum outcomes grid, articulated a formal assessment plan, used course examinations, laboratory exercises, and ASCP certification exam results to measure student learning, and gathered data on student grades, graduation, and retention.

Measureable Learning Outcomes:

a. MLS Program Goals:

Upon successful completion of the Weber State University Medical Laboratory Science Program, a student should be able to:

1. Knowledge Goal: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.
2. Knowledge Goal: Apply mathematical calculations to laboratory situations.
3. Laboratory Skill: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.
4. Laboratory Skill: Correlate laboratory theory and terminology to practical laboratory work.
5. Laboratory Skill: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.
6. Diagnostic Skill: Relate laboratory findings to common disease processes.
7. Professionalism and Ethics: Demonstrate professional conduct and ethical behavior.
8. Communication Skill: Demonstrate effective communication skills and behaviors with colleagues in the program and in a laboratory setting.

b. Linkage to the program's curriculum: These goals are well linked to the curriculum. The Curriculum Map table displays the rankings (introduced, emphasized, utilized, assessed comprehensively), the degree to which each MLS course required meets each of the 8 learning goals, and the extent to which some courses emphasize some goals more than others. The MLS curriculum provides an excellent mixture of these goals and the students are well prepared to enter into the field of Medical Laboratory Sciences upon their graduation from the MLS program.

Summary Information:

The MLS program builds upon competency statements as outlined in the ASCP Board of Certification. The competencies are provided in didactic courses and expanded upon in the laboratory setting. Students are assessed by quizzes, examinations, case studies, and laboratory competencies.

Evidence of Learning: Courses within the Major: MLS 1000

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Approximately 30% of each of the 7 exams	Measure 1: 100% of students will score 80% or better on specified exam questions	Measure 1: 100% of students scored 80% or better on specified exam questions	Measure 1: All students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students practice these skills with a qualified mentor on a weekly basis	Measure 2: 100% of students will correctly perform required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills to mentor satisfaction	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of	Measure 1: Approx. 10% of multiple choice questions on exams 2,3,5,6 and 7 Approx. 50% of multiple choice questions on exams 1	Measure 1: 100% of students will score 80% or on these specific questions	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
quality assurance procedures.	and 4			methods.	
	Measure 2: Demonstrate knowledge of specimen criteria and properly perform simple laboratory procedures for lab mentor	Measure 2: 100% of students will correctly determine proper sample suitability and properly perform simple lab procedures	Measure 2: 100% of students were able to correctly determine proper sample suitability and perform simple lab procedures	Measure 2: All students correctly determined proper sample suitability and perform lab procedures to mentor satisfaction	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: 7 lab quizzes and approx. 10-20% of each exam with multiple choice questions	Measure 1: 100% of students will score 80% on exams and quizzes	Measure 1: 100% of students scored 100% on quizzes (multiple attempts allowed)	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Assess unknowns with accuracy during 4 laboratory practical exams	Measure 2: 100% of students will score 80% or better on 4 laboratory practical exams	Measure 2: 99% of students scored 80% or better on 4 laboratory practical exams.	Measure 2: Most students performed the required skills during the 4 laboratory practical exams.	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to	Measure 1: A set of 20 multiple choice questions from Exams 2 and 3	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
solve problems/discrepancies.	Measure 2: Student properly demonstrates trouble shooting in various areas of the lab to lab mentor	Measure 2: 100% of students will achieve at least 80% competency in this area	Measure 2: 100% of students achieved at least 80% in this area based on mentor assessment	Measure 2: All students demonstrated acceptable problem solving skills	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: A set of 25 questions from Exams 2, 3, 5, 6 and 7	Measure 1: 100% of students will score 80% or better on 25 questions.	Measure 1: 100% of students scored 80% or better on 25 questions	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2:	Measure 2:
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Student will be required to respond in group discussions in a professional manner and will turn in course work in a timely manner	Measure 1: 100% of students will turn in course work , late work is penalized 100% of students will post to group discussions	Measure 1: 99% of students turned in course work in a timely manner 100% of students posted to group discussions	Measure 1: All students responded to discussions in a professional manner, most course work was on time, late submission were pre-arranged or emergency situations.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Affective Objectives on Clinical Competencies	Measure 2: 100% of students will score 80% or better	Measure 1: 100% of students scored 80% or better	Measure 1: All students were able to prove competency in this area when assessed by their lab mentor	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: N/A	Measure 1: N/A	Measure 2: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Personal Interactive and Professional Skills on Clinical Competencies.	Measure 2: 100% of students will score 80% or better	Measure 2: 100% of students scored 80% or better	Measure 2: All students were able to prove competency in this area	Measure 2: : No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: This course is designed to provide additional training to individuals employed in the health care industry who may be interested in learning an additional set of medical skills to enhance their employability. The program is designed to encourage medical assistants, phlebotomists, certified nursing practitioners and other health care workers to achieve competencies which better serve patient care in settings requiring basic laboratory testing as a part of the facility's health care services. The MLS 1000 course is designed to teach core clinical laboratory skills to individuals from various health care professions. The curriculum will focus on basic laboratory methods in quality control, quality assurance, information recording and transfer, normal and abnormal laboratory values, and problem recognition. Students will receive basic technical instruction in phlebotomy, specimen collection and processing, and laboratory instrumentation in the areas of hematology, serology, urinalysis, and clinical chemistry.   This course is an introductory level course, so learning goals 1,4,5,6, and 8 are geared toward exposing/introducing the student to several aspects of the laboratory as a whole. Learning goal 2 applies to mathematical calculations, at this level, students are not expected to complete complex calculations. Learning goals 3 and 7 are emphasized in this course. In all cases, the measures show that 100% of students

are meeting requirements of the seven applicable learning goals at 80% or higher, so no changes are needed at this time. Data is based on seven sections taught since spring 2010 to present.

Evidence of Learning: Courses within the Major: MLS 1003

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: 40-50% of Exams 1,2 and 3	Measure 1: 100% of students will score 80% or better on these exams	Measure 1: 100% of students scored 80% or better on these exams	Measure 1: All students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 4 graded lab summaries in which student correctly performed required lab skills	Measure 2: 100% of students will correctly perform required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: N/A Introductory level course. Calculations not required.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance	Measure 1: A set of 5 multiple choice questions from Exams 1, 2 and 3	Measure 1: 100% of students will score 80% or better on 5 questions	Measure 1: 96% of students scored 80% or better on 5 questions.	Measure 1: All students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis methods.	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
procedures.	Measure 2: Demonstrate proper knowledge of simple lab procedures for lab mentor	Measure 2: 100% of students will correctly demonstrate proper procedure.	Measure 2: 100% of students were able to correctly demonstrate proper procedure to mentor satisfaction	Measure 2: All students correctly determined proper sample suitability.	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: 20-30% of Exam 1, 2 and 3. Multiple choice questions	Measure 1: 100% of students will score 80% or better on each exam	Measure 1: 100% of students scored 80% or better on each exam	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: About 10% of the Clinical competency checklist	Measure 2: 100% of students will score 80% or better on clinical competencies	Measure 2: 100% of students scored 80% or better on clinical competencies	Measure 2: All students performed the required skills on the clinical competency checklist	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: About 10% of multiple choice questions from Exams 1,2 and 3	Measure 1: 100% of students will score 80% or better on specified questions.	Measure 1: 100% of students scored 80% or better on specified questions.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students must trouble shoot QC/QA discrepancies with mentor	Measure 2: 100% of students will correctly resolve trouble shoot QC/QA discrepancies with mentor	Measure 2: 100% of students were able to correctly resolve discrepancies with mentor	Measure 2: All students correctly resolved discrepancies	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: A set of 5 questions from Exams 1,2 and 3	Measure 1: 100% of students will score 80% or better on each set of 5 questions.	Measure 1: 100% of students scored 80% or better on each set of 5 questions.	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Student will be required to respond in group discussions in a professional manner	Measure 1: 100% of students will post to group discussions	Measure 1: 100% of students posted to group discussions	Measure 1: All students responded to discussions in a professional manner	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Affective Objectives on Clinical Competencies	Measure 2: 100% of students will score 80% or better	Measure 1: 100% of students scored 80% or better	Measure 1: All students were able to prove competency in this area when assessed by their lab mentor	Measure 1: No curricular or pedagogical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: N/A	Measure 1: N/A	Measure 2: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Personal Interactive and Professional Skills on Clinical Competencies.	Measure 2: 100% of students will score 80% or better	Measure 2: 100% of students scored 80% or better	Measure 2: All students were able to prove competency in this area	Measure 2: : No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

   Summary: MLS 1003 is an introductory level class. MLS 1003 in conjunction with MLS 1000 is meant to be the equivalent of MLS 1113. This class is only available online and is for students that have already completed MLS 1000 or a CLA training program with WSU. Principles and applications for laboratory testing including safe practices for laboratory practitioner, specimen quality assurance, basic concepts in clinical immunology, and clinical approaches to immunological testing. No changes are needed for this course at this time.

Evidence of Learning: Courses within the Major: MLS 1113

Evidence of Learning: Courses within the Major: MLS 1113					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: 6 Unit exams and one comprehensive final where students are assessed through multiple choice questions and case study scenarios	Measure 1: Students are expected to score 80% or better to prove knowledge and competency	Measure 1: The majority of students were able to achieve 80% or higher competency	Measure 1: Only the students who achieve competency are eligible to be admitted to the MLS program.	Measure 1: No changes needed at this time
	Measure 2 12 laboratory sessions that focus on concept application and practical work	Measure 1: Students are expected to score 80% or better to prove knowledge and competency	Measure 1: The majority of students were able to achieve 80% or higher competency	Measure 1: Only the students who achieve competency are eligible to be admitted to the MLS program.	Measure 1: No changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: Multiple choice questions in Exam 4 assess absolute and raw sperm counts	Measure 1: Students will score 80% or better on 50 questions.	Measure 1: The majority of students scored 80% or better on Exam 4.	Measure 1: Most students successfully applied mathematical calculations to laboratory situations.	Measure 1: No changes needed at this time
	Measure 2: Formative assessment in the form of a group quiz during lecture following the sperm count lecture assesses calculating	Measure 2: Students will correctly perform mathematical calculations in class and answer questions as a group and be able	Measure 2: The majority of the students correctly performed mathematical calculations in class.	Measure 2: Students understand the concept and are able to apply it in laboratory situations.	Measure 2: No changes needed at this time

Evidence of Learning: Courses within the Major: MLS 1113					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	absolute and raw sperm counts.	to apply to laboratory situations.			
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: Unit 4 Exam tests knowledge theory of Phlebotomy	Measure 1: The majority of the students will score 80% or better on 50 questions	Measure 1: The majority of students scored 80% or better on Exam 4.	Measure 1: Students successfully demonstrated their understanding of phlebotomy theory.	Measure 1: No changes needed at this time
	Measure 2: Demonstrate knowledge of phlebotomy by successfully performing a syringe and a vacutainer draw on a classmate.	Measure 2: Students will correctly perform phlebotomy on a classmate.	Measure 2: The majority of students were able to successfully perform phlebotomy.	Measure 2: Most students were able to apply the theory learned and successfully draw blood.	Measure 2: No changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Exam 3 uses 50 multiple choice questions to assess theory on reagent test strips and correlate it with urine microscopic analysis.	Measure 1: Students will score 80% or better on 50 questions.	Measure 1: The majority of students scored 80% or better on 50 questions	Measure 1: Most students successfully correlated laboratory theory of reagent test strips to microscopic urinalysis performed as practical work.	Measure 1: No changes needed at this time
	Measure 2: Five laboratory sessions requiring students to perform urine microscopic examination and	Measure 2: Students must score 80% or better on laboratory assignments.	Measure 2: The majority of students scored 80% or better on urine microscopic and reagent test strips	Measure 2: The majority of students performed the required skills during their laboratory assignments	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major: MLS 1113					
Measurable Learning Goal Students will… Direct and Indirect Measures*	Method of Measurement	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	reagent test strips.		laboratory assignments.	demonstrating proficiency in urinalysis.	
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: A set of Urinalysis Case Studies from Unit 2.	Measure 1: Students will score 80% or better on 6 case studies.	Measure 1: The majority of students scored 80% or better on 6 case studies.	Measure 1: The majority of students successfully demonstrated theory underlying urinalysis and how it relates to renal disease.	Measure 1: No changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: A set of Urinalysis Case Studies from Unit 2.	Measure 1: Students will score 80% or better on 6 case studies.	Measure 1: The majority of students scored 80% or better on 6 case studies.	Measure 1: The majority of students successfully demonstrated theory underlying urinalysis and how it relates to renal disease.	Measure 1: No changes needed at this time
	Measure 2: 50 questions on Exam 3 dealing with renal disease.	Measure 2: Students will score 80% or better on the Unit 2 exam.	Measure 2: The majority of students were able to score 80% or better.	Measure 2: The majority of students correctly related laboratory findings to common renal diseases.	Measure 2: No changes needed at this time.

Evidence of Learning: Courses within the Major: MLS 1113					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus.	Measure 1: Students will attend laboratory section and be punctual.	Measure 1: The majority of students attended laboratory sessions unless previously excused.	Measure 1: The majority of students attended laboratory sessions and most were punctual.	Measure 1: No changes needed at this time.
	Measure 2: Adherence to laboratory dress code and safety procedures through viewing safety videos and discussions during the first lab session.	Measure 2: Students will comply with dress code and safety procedures.	Measure 2: All students complied with dress code and safety procedures.	Measure 2: All students were in compliance with dress code and safety procedures.	Measure 2: Nol changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Class discussions and open-ended questions	Measure 1: Students will participate in class discussions when open ended questions are asked regarding the material.	Measure 1: Students are able to communicate their knowledge through class discussion	Measure 1: All students were able to communicate their knowledge through class discussions.	Measure 1: No changes needed at this time.
	Measure 2: Reflective questions as part of phlebotomy lab competency.	Measure 2: Students will be able to respond to 2 reflective questions and evaluate their own performance.	Measure 2: Students will evaluate themselves and offer suggestions on how they can improve their phlebotomy skills.	Measure 2: Students reflected on their skills and self-evaluated allowing them to find ways to improve.	Measure 2: No clinical changes needed at this time.

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 1113: Introduction to laboratory practices.
 This course encompasses principles and applications to laboratory testing including safe practices for the laboratory practitioner, specimen quality assurance, phlebotomy, urinalysis, basic concepts in clinical immunology, and clinical approaches to immunological testing. Laboratory session addresses the principles and applications to laboratory testing including safe practices for the laboratory practitioner, specimen quality assurance, phlebotomy, urinalysis, basic concepts in clinical immunology, and clinical approaches to immunological testing.

Evidence of Learning: Courses within the Major: MLS 1123 Principles of Hematology and Hemostasis

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: The Unit 1 exam tests the principles of hematology testing. The Unit 5 exam tests the principles of hemostasis testing. 50 multiple choice questions each.	Measure 1: 100% of students will score 80% or better on both exams.	Measure 1: 95% of students scored 80% or better on both exams.	Measure 1: 95% of students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 17 graded laboratory practice sessions and 1 final comprehensive lab exam	Measure 2: 100% of students will correctly perform required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 8 multiple choice questions requiring mathematical calculations in exam 1 and 5	Measure 1: 100% of students will score 80% or better on 8 questions.	Measure 1: 95% of students scored 80% or better on 8 questions.	Measure 1: 95% of students successfully applied mathematical calculations to laboratory situations.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2:6 laboratory sessions requiring applications of laboratory mathematical calculations	Measure 2: 100% of students will correctly perform mathematical calculations in 6 laboratory situations.	Measure 2: 100% of students correctly performed mathematical calculations in 6 laboratory situations.	Measure 2: All students correctly performed mathematical calculations in 6 laboratory situations.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: 50 multiple choice questions from Exam 1 and 10 multiple choice questions from Exam 5	Measure 1: 95% of students will score 80% or better on 60 questions	Measure 1: 95% of students scored 80% or better on 20 questions.	Measure 1: 95% of students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis methods.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Demonstrate proper knowledge of specimen criteria in a hematology laboratory setting	Measure 2: 100% of students will correctly determine proper sample suitability.	Measure 2: 100% of students were able to correctly determine proper sample suitability for hematology analysis	Measure 2: All students correctly determined proper sample suitability.	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: 50 multiple choice questions each from exams 2, 3, and 4	Measure 1: 100% of students will score 80% or better on all questions.	Measure 1: 95% of students scored 80% or better on 20 questions	Measure 1: 95% of students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Evaluate abnormal hematology smears from a wide variety of disorders during 6 laboratory sessions. Assess competency during 1	Measure 2: 100% of students will score 80% or better on the laboratory practical exam and participate in all required laboratory sessions.	Measure 2: 95% of students scored 80% or better on the laboratory practical exam and participated in all required laboratory sessions.	Measure 2: Most students performed the required skills during the laboratory practical exam and required laboratory sessions.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	laboratory practical exam				
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: A set of 15 multiple choice questions from Exams 1 and 5	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students correlate patient history and diagnoses to laboratory findings in 6 laboratory sessions	Measure 2: 100% of students will correctly correlate patient history and diagnoses to laboratory findings in 6 laboratory sessions	Measure 2: 95% of students were able to correctly correlate patient history and diagnoses to laboratory findings in 6 laboratory sessions	Measure 2: Most students correctly correlated patient history and diagnoses to laboratory findings in 6 laboratory sessions	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: 50 multiple choice questions each from exams 2, 3, and 4, and 25 questions from exam 5.	Measure 1: 100% of students will score 80% or better on 50 multiple choice questions each from exams 2, 3, and 4, and 25 questions from exam 5.	Measure 1: 95% of students scored 80% or better on 50 multiple choice questions each from exams 2, 3, and 4, and 25 questions from exam 5.	Measure 1: Most students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 6 laboratory sessions students relate laboratory findings to common diseases	Measure 2: 100% of students will perform the required skills in the laboratory	Measure 2: 100% of students were able to relate laboratory findings to common diseases.	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 95% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety procedures.	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Laboratory etiquette and expectations are defined in the syllabus. Measured by punctuality and participation.	Measure 1: 100% of students will be punctual to laboratory sessions, and remain task-oriented throughout the session in order to receive full participation credit.	Measure 1: 95% of students were punctual to laboratory sessions, and remained task-oriented throughout the session and received full participation credit.	Measure 1: Most students demonstrated effective communication skills through punctuality and task-orientedness during laboratory sessions.	Measure 1: : No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

   Summary: MLS 1123 is an introductory hematology course covering the theory and principles of hematology and hemostasis relevant to routine laboratory testing, normal erythrocyte physiology and associated disorders, normal leukocyte physiology and associated non-malignant and malignant disorders, and normal platelet and coagulation physiology and associated disorders. MLS 1123 contains all eight of the program's identified learning goals, though in appropriately varying amounts. As noted in the curriculum map, learning goals 5 and 8 are areas of introduction, learning goals 1 and 3 are emphasized, and learning goals 2, 4, 6,

and 7 are utilized. Data in this table is limited due to the short time frame of a new faculty member and reflects a course taught in Summer 2012, and an in-progress course in Fall 2012.

Evidence of Learning: Courses within the Major: MLS 2211

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Each exam covers testing specific to the covered units.	Measure 1: Each student must complete the exam with a score of at least 80%.	Measure 1: All students with passing grades achieved a score of at least 80% on each unit exam.	Measure 1: All students with passing grades showed an acceptable level of understanding of the theory behind the testing discussed.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Students will complete laboratory exercises, which require understanding of the testing methods.	Measure 2: The total points earned from the laboratory must equal at least 80% of the points possible.	Measure 2: All students with passing grades earned at least 80% of the total points possible.	Measure 2: All students with passing grades showed competency of the covered topics and laboratory exercises.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: Students must complete a 50-question math exam.	Measure 1: Each student must pass the exam with a score of at least 80%.	Measure 1: All students with passing grades scored at least 80%.	Measure 1: All students with a passing grade can successfully complete laboratory mathematics.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Graded laboratory exercises, which include calculations.	Measure 2: All students must correctly complete laboratory calculations.	Measure 2: All students with passing grades earned at least 80% of the total points possible.	Measure 2: All students with passing grades can successfully complete laboratory mathematics.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 3: Perform laboratory procedures from simple to complex, including	Measure 1: Students will complete a laboratory final with several exercises	Measure 1: All students must complete the laboratory final with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can successfully complete laboratory testing	Measure 1: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
specimen collection and processing, analysis, (CONT) interpretation, and use of quality assurance procedures.	ranging in difficulty.			procedures ranging in difficulty.	
	Measure 2: Demonstrate knowledge of accurate sample requirements and collection procedures.	Measure 2: Students will assess samples submitted for testing for acceptability.	Measure 2: All students with passing grades have accurately demonstrated knowledge of sample requirements.	Measure 2: All students can assess samples for testing as appropriate.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students will correlate theory and terminology in all laboratory exercises.	Measure 1: Students will complete all laboratory correlation activities with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can correlate theory to practical laboratory situations.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Students must test unknown samples during laboratory exercises.	Measure 2: Students must complete the laboratory section with at least 80%.	Measure 2: All students with passing grades earned a score of at least 80%.	Measure 2: All students with passing grades can correlate theory to practical laboratory situations.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 5: Gather additional laboratory data and apply	Measure 1: Not applicable.	Measure 1: Not applicable.	Measure 1: Not applicable.	Measure 1: Not applicable.	Measure 1: Not applicable.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
problem solving skills to solve problems/discrepancies.	Measure 2: Not applicable.	Measure 2: Not applicable.	Measure 2: Not applicable.	Measure 2: Not applicable.	Measure 2: Not applicable.
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: Each unit exam will test the student's ability to correlate laboratory findings to common diseases.	Measure 1: Each student must pass the exam with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can accurately correlate laboratory findings to common diseases.	Measure 1: Findings indicate no changes are needed at this time.
(CONT)	Measure 2: Laboratory exercises require students to use disease correlation to laboratory findings as a QA tool.	Measure 2: Students must identify laboratory results that are not consistent with patient diagnoses.	Measure 2: All students with passing grades have accurately correlated laboratory findings on assigned laboratory activities.	Measure 2: All students with passing grades can correlate laboratory findings to disease states covered in the course.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Unit 1 test contains 30 questions and includes professional behavior.	Measure 1:Students must pass the test with a score of at least 80%.	Measure 1: All students with passing grades scored at least 80% on the test.	Measure 1: All students with passing scores have an introductory understanding of professional behavior.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Adherence to proper laboratory dress code and common regulatory requirements (i.e. HIPPA)	Measure 2: Students must comply with dress code requirements for safety and HIPPA requirements.	Measure 2: All students with passing grades properly gowned laboratory clothing (i.e. lab coat) and showed compliance to HIPPA	Measure 2: All students with passing grades are aware of proper laboratory attire and HIPPA regulations that are discussed.	Measure 2: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
			regulations they were exposed to.		
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Laboratory exercises require students to communicate critical values to the healthcare provider.	Measure 1: All students must accurately identify all critical values and properly report them to the provider.	Measure 1: All students with passing grades were able to identify critical values.	Measure 1: All students with passing grades know the importance of prompt and professional interaction.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Instructor/ Professor observation of interactions amongst peers.	Measure 2: All students must adhere to the no hazing policy outlined in the course syllabus.	Measure 2: All students with a passing grade have interacted appropriately with their colleagues.	Measure 2: All students with passing grades know the importance of prompt and professional interaction.	Measure 2: Findings indicate no changes are needed at this time.

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 2211 is an introductory clinical chemistry course covering the theory and principles of clinical chemistry, including laboratory basics, HIPPA and harassment, carbohydrate metabolism, osmolality, electrolyte balance, iron metabolism, reagent preparation, non-protein nitrogen waste products, and blood gas analysis. MLS 2211 contains seven of the eight identified learning goals. This course does not include gathering additional data on patients, as it is rarely needed in the clinical chemistry department. The exposure level of each goal in this course is appropriate for the introductory students.

Evidence of Learning: Courses within the Major: MLS 2212

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: 3 quizzes (100% of questions), 4 exams and comprehensive final (75% of questions)	Measure 1: 100% of students will score 80% or better on all test questions (quizzes are excluded)	Measure 1: Approx. 92% of students scored 80% or better all exams (avg. 37 of 40 students)	Measure 1: 92% of students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 13 weeks of graded laboratory activities and 2 practical in-lab exams	Measure 2: 100% of students will score 80% or better by correctly performing required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 2-3 questions per quiz and 4-5 questions per exam, fill-in-the blank and multiple choice	Measure 1: 100% of students will score 80% or better math questions	Measure 1: 100% of students scored 80% or better on math questions	Measure 1: All students successfully applied mathematical calculations to laboratory situations	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 6 weekly laboratory activities with 1-2 unknown patient specimens per week which utilize correct reporting of urine cultures involving mathematical calculations	Measure 2: 100% of students will score 80% or better on mathematical calculations in laboratory situations	Measure 2: 100% of students correctly performed mathematical calculations 80% or better in laboratory situations	Measure 2: All students correctly performed mathematical calculations in lab situations 80% of the time or better	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: 13 weeks of graded laboratory activities, each involving identification of bacterial unknown specimens and 2 practical in-lab exams	Measure 1: 100% of students will score 80% or better on laboratory activities and practical exams	Measure 1: 100% of students scored 80% or better overall on final course laboratory grade	Measure 1: All students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis methods.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Demonstrate proper knowledge of quality assurance procedures in clinical microbiology laboratory	Measure 2: 100% of students will correctly determine proper quality assurance procedures in clinical microbiology laboratory	Measure 2: 100% of students were able to correctly determine proper quality assurance procedures in clinical microbiology laboratory	Measure 2: All students correctly determined quality assurance procedures in clinical microbiology laboratory	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: All course exams and 3 quizzes have 50% of questions that correlate theory/terminology to laboratory testing	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Assess 4-5 weekly laboratory unknowns in each of the 13 laboratory activities and 1 comprehensive lab final	Measure 2: 100% of students will score 80% or better overall on course laboratory activates and comprehensive lab final	Measure 2: 100% of students scored 80% or better overall on course laboratory activates and comprehensive lab final	Measure 2: All students performed the required skills during 13 lab activates and comprehensive lab final	Measure 2: No clinical changes needed at this time

		Evidence of Learning: Courses within the Major			
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Four case study homework assignments in Unit 2 and Unit 3.	Measure 1: 100% of students must complete assignments	Measure 1: 100% of students completed the four assignments.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: Exams 2,3,4 and the final exam contain approximately 10% diagnostic questions	Measure 1: 100% of students will score 80% or better on the diagnostic questions	Measure 1: 100% of students scored 80% or better on the diagnostic questions	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 11 of the weekly laboratory activities specimen source of unknowns is related to diseases	Measure 2: 100% of students will perform 80% or better relating specimen unknowns to related diseases	Measure 2: 100% of students were able to relate laboratory findings to common diseases 80% of the time	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 95% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
				procedures.	
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Correct reporting of laboratory results in 13 weekly activities.	Measure 1: 100% of students will correctly report results 80% or better on laboratory reports.	Measure 1: 100% of students were able to correctly report results 80% or better on laboratory reports.	Measure 1: All students were able to correctly report laboratory reports.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students work in teams for 6 of 13 weekly laboratory activities	Measure 2: 100 % of students will demonstrate effective team work during the 6 weeks of laboratory activates	Measure 2: 100% of students demonstrated effective team work.	Measure 2: All students demonstrated effective team work.	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.
** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 2212 – Principles in Clinical Microbiology I is an introductory clinical microbiology course provides an in-depth coverage of clinically significant bacteria including epidemiology, pathogenicity, and procedures for traditional laboratory identification. Major organisms include Gram positive cocci enteric Gram negative rods, nonfermentative Gram negative bacilli and miscellaneous Gram negative rods. This course contains all eight of the program's identified learning goals. In all cases, the measures show that 100% of the students are reaching all 8 goals at levels of 80% or above, so no curricular or clinical changes are seen as needed at this time. Data in this table are derived from five semesters and two sections/semester of the course taught from spring 2008-2012 by Scott Wright.

Evidence of Learning: Courses within the Major: MLS 2213

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Each exam covers testing specific to the covered units.	Measure 1: Each student must complete the exam with a score of at least 80%.	Measure 1: All students with passing grades achieved a score of at least 80% on each unit exam.	Measure 1: All students with passing grades showed an acceptable level of understanding of the theory behind the testing discussed.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Students will complete laboratory exercises, which require understanding of the testing methods.	Measure 2: The total points earned from the laboratory must equal at least 80% of the points possible.	Measure 2: All students with passing grades earned at least 80% of the total points possible.	Measure 2: All students with passing grades showed competency of the covered topics and laboratory exercises.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: Multiple exams include questions covering reactions specific to that unit.	Measure 1: Each student must pass the exam with a score of at least 80%.	Measure 1: All students with passing grades scored at least 80%.	Measure 1: All students with a passing grade can successfully complete laboratory mathematics.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Graded laboratory exercises, which include calculations.	Measure 2: All students must correctly complete laboratory calculations.	Measure 2: All students with passing grades earned at least 80% of the total points possible.	Measure 2: All students with passing grades can successfully complete laboratory mathematics.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 3: Perform laboratory procedures from simple to complex, including	Measure 1: Students will complete a laboratory final with several exercises	Measure 1: All students must complete the laboratory final with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can successfully complete laboratory testing	Measure 1: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
specimen collection and processing, analysis, (CONT) interpretation, and use of quality assurance procedures.	ranging in difficulty.			procedures ranging in difficulty.	
	Measure 2: Demonstrate knowledge of accurate sample requirements and collection procedures.	Measure 2: Students will assess samples submitted for testing for acceptability.	Measure 2: All students with passing grades have accurately demonstrated knowledge of sample requirements.	Measure 2: All students can assess samples for testing as appropriate.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students will correlate theory and terminology in all laboratory exercises.	Measure 1: Students will complete all laboratory correlation activities with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can correlate theory to practical laboratory situations.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Students must test unknown samples during laboratory exercises.	Measure 2: Students must complete the laboratory section with at least 80%.	Measure 2: All students with passing grades earned a score of at least 80%.	Measure 2: All students with passing grades can correlate theory to laboratory situations.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Students will evaluate a collection of tests to identify discrepancies.	Measure 1: All students must pass the panel exam with at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades are able to correlate multiple results for the identification of erroneous entries.	Measure 1: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 2: Some laboratory activities require the students to troubleshoot specimen/result discrepancies.	Measure 2: All Students must correct discrepancies in order to report out correct results with at least 80% accuracy.	Measure 2: All students with passing grades earned a score of at least 80%.	Measure 2: All students with passing grades are able to identify and correct discrepancies in order to provide accurate results.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: Each unit exam will test the student's ability to correlate laboratory findings to common diseases.	Measure 1: Each student must pass the exam with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can accurately correlate laboratory findings to common diseases.	Measure 1: Findings indicate no changes are needed at this time.
(CONT)	Measure 2: Laboratory exercises require students to use disease correlation to laboratory findings as a QA tool.	Measure 2: Students must identify laboratory results that are not consistent with patient diagnoses.	Measure 2: All students with passing grades have accurately correlated laboratory findings on assigned laboratory activities.	Measure 2: All students with passing grades can correlate laboratory findings to disease states covered in the course.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: The final exam contains 30 questions that cover professional behavior.	Measure 1:Students must pass the test with a score of at least 80%.	Measure 1: All students with passing grades scored at least 80% on the test.	Measure 1: All students with passing scores have an introductory understanding of professional behavior.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Adherence to proper laboratory dress code and common regulatory requirements (i.e. HIPAA)	Measure 2: Students must comply with dress code requirements for safety and HIPAA requirements.	Measure 2: All students with passing grades properly gowned laboratory clothing (i.e. lab coat) and showed compliance to HIPAA	Measure 2: All students with passing grades are aware of proper laboratory attire and HIPAA regulations that are discussed.	Measure 2: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
			regulations they were exposed to.		
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Laboratory exercises require students to communicate critical values to the healthcare provider.	Measure 1: All students must accurately identify all critical values and properly report them to the provider.	Measure 1: All students with passing grades were able to identify critical values.	Measure 1: All students with passing grades know the importance of prompt and professional interaction.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Instructor/ Professor observation of interactions amongst peers.	Measure 2: All students must adhere to the no hazing policy outlined in the course syllabus.	Measure 2: All students with a passing grade have interacted appropriately with their colleagues.	Measure 2: All students with passing grades know the importance of prompt and professional interaction.	Measure 2: Findings indicate no changes are needed at this time.

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 2213 is an introductory clinical chemistry course covering the theory and principles of clinical chemistry, including protein catabolism, Lipids, enzymology, therapeutic drug monitoring, toxicology, analytical principles, and endocrinology. MLS 2213 contains all of the eight identified learning goals. The exposure level of each goal in this course is appropriate for the introductory students.

Evidence of Learning: Courses within the Major: MLS 2214

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: 2 quizzes (100% of questions), 4 exams and comprehensive final (75% of questions)	Measure 1: 100% of students will score 80% or better on all test questions (quizzes are excluded)	Measure 1: Approx. 92% of students scored 80% or better all exams (avg. 37 of 40 students)	Measure 1: 92% of students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 11 weeks of graded laboratory activities and 1 practical in-lab exam	Measure 2: 100% of students will score 80% or better by correctly performing required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 1-2 questions on exam 1 multiple choice	Measure 1: 100% of students will score 80% or better math questions	Measure 1: 100% of students scored 80% or better on math questions	Measure 1: All students successfully applied mathematical calculations to laboratory situations	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 3 weekly laboratory activities with 1-2 unknown patient specimens and 4 weeks of hospital urine culture plates, which utilize correct reporting of urine cultures involving mathematical calculations.	Measure 2: 100% of students will score 80% or better on mathematical calculations in laboratory situations	Measure 2: 100% of students correctly performed mathematical calculations 80% or better in laboratory situations	Measure 2: All students correctly performed mathematical calculations in lab situations 80% of the time or better	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: 11 weeks of graded laboratory activities involving identification of bacteria and parasites	Measure 1: 100% of students will score 80% or better on laboratory activities and practical exams	Measure 1: 100% of students scored 80% or better overall on final course laboratory grade	Measure 1: All students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis methods.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Demonstrate proper knowledge of quality assurance procedures in clinical microbiology laboratory	Measure 2: 100% of students will correctly determine proper quality assurance procedures in clinical microbiology laboratory	Measure 2: 100% of students were able to correctly determine proper quality assurance procedures in clinical microbiology laboratory	Measure 2: All students correctly determined quality assurance procedures in clinical microbiology laboratory	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: All course exams and 2 quizzes have 50% of questions that correlate theory/terminology to laboratory testing	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Assess 4-5 weekly laboratory unknowns in each of the 11 laboratory activities	Measure 2: 100% of students will score 80% or better overall on course laboratory activates	Measure 2: 100% of students scored 80% or better overall on course laboratory activates	Measure 2: All students performed the required skills during 13 lab activates	Measure 2: No clinical changes needed at this time

		Evidence of Learning: Courses within the Major			
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Four case study homework assignments in Unit 6, 7, 8, and 11.	Measure 1: 100% of students must complete assignments	Measure 1: 100% of students completed the four assignments.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: Exams 2,3,4 and the final exam contain approximately 20% diagnostic questions	Measure 1: 100% of students will score 80% or better on the diagnostic questions	Measure 1: 100% of students scored 80% or better on the diagnostic questions	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 11 of the weekly laboratory activities, specimen source of unknowns is related to diseases	Measure 2: 100% of students will perform 80% or better relating specimen unknowns to related diseases	Measure 2: 100% of students were able to relate laboratory findings to common diseases 80% of the time	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 95% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
				procedures.	
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Correct reporting of laboratory results in 11 weekly activities.	Measure 1: 100% of students will correctly report results 80% or better on laboratory reports.	Measure 1: 100% of students were able to correctly report results 80% or better on laboratory reports.	Measure 1: All students were able to correctly report laboratory reports.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students work in teams for 3 of 11 weekly laboratory activities	Measure 2: 100 % of students will demonstrate effective team work during the 6 weeks of laboratory activates	Measure 2: 100% of students demonstrated effective team work.	Measure 2: All students demonstrated effective team work.	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 2214 – Principles in Clinical Microbiology II is an introductory course and is a continuation of MLS 2212, including antimicrobials, Gram positive rods, mycobacteria, anaerobes, mycology, and parasitology. This course contains all eight of the program's identified learning goals. In all cases, the measures show that 100% of the students are reaching all 8 goals at levels of 80% or above, so no curricular or clinical changes are seen as needed at this time. Data in this table are derived from five semesters and two sections/semester of the course taught from spring 2008-2012 by Scott Wright.

Evidence of Learning: Courses within the Major: MLS 2215

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: A set of 10 multiple choice questions from Exams 2	Measure 1: 100% of students will score 80% or better on 10 questions	Measure 1: 100% of students scored 80% or better on 10 questions)	Measure 1: All students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 9 graded laboratory practice sessions and 4 unknown practical exams	Measure 2: 100% of students will correctly perform required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 1: A set of 20 multiple choice questions from Exams 4 and Final Exam	Measure 1: 100% of students will score 80% or better on 10 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully applied mathematical calculations to laboratory situations.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 2 graded laboratory applications of laboratory mathematical calculations	Measure 2: 100% of students will correctly perform mathematical calculations in laboratory situations.	Measure 2: 100% of students correctly performed mathematical calculations in laboratory situations.	Measure 2: All students correctly performed mathematical calculations in laboratory situations.	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use	Measure 1: A set of 20 multiple choice questions from Exams 1 and 2	Measure 1: 100% of students will score 80% or better on 20 questions	Measure 1: 96% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
of quality assurance procedures.				methods.	
	Measure 2: Demonstrate proper knowledge of specimen criteria in a blood bank laboratory setting	Measure 2: 100% of students will correctly determine proper sample suitability.	Measure 2: 100% of students were able to correctly determine proper sample suitability for blood bank analysis	Measure 2: All students correctly determined proper sample suitability.	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: A set of 20 multiple choice questions from Exams 2 and 3	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Assess unknowns with accuracy during 4 laboratory practical exams	Measure 2: 100% of students will score 80% or better on 4 laboratory practical exams	Measure 2: 99% of students scored 80% or better on 4 laboratory practical exams.	Measure 2: Most students performed the required skills during the 4 laboratory practical exams.	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving	Measure 1: A set of 20 multiple choice questions from Exams 2 and 3	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
skills to solve problems/discrepancies.	Measure 2: Students resolve discrepancies in the 13 laboratory sessions and must correlate patient history to laboratory findings	Measure 2: 100% of students will correctly resolve discrepancies in the 13 laboratory sessions and correlate patient history to laboratory findings	Measure 2: 100% of students were able to correctly resolve discrepancies in the 13 laboratory sessions and correlate patient history to laboratory findings	Measure 2: All students correctly resolved discrepancies in the 13 laboratory sessions and correlated patient history to laboratory findings	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: A set of 25 questions from Exams 2, 3, and 4	Measure 1: 100% of students will score 80% or better on 25 questions.	Measure 1: 100% of students scored 80% or better on 25 questions	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 2 laboratory sessions students relate laboratory findings to common diseases	Measure 2: 100% of students will perform the required skills in the laboratory	Measure 2: 100% of students were able to relate laboratory findings to common diseases.	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 89% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety procedures.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: 3 essay questions on exams 2, 3, and 4	Measure 1: 100% of students will score 80% or better on essay questions.	Measure 1: 100% of students were able to communicate their knowledge on the essay questions	Measure 1: All students were able to communicate their knowledge on the essay questions	Measure 1: : No curricular or pedagogical changes needed at this time
	Measure 2: Friday current event classroom discussions with student participation	Measure 2: Students will be able to respond to laboratory related current events	Measure 2: 100% of students voice their opinions and provide responses to topics explored in class	Measure 2: All students can communicate better as the course progresses	Measure 2: No clinical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.
** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 2215 is an introductory immunohematology course covering the theory and principles of Immunohematology relevant to blood group serology, antibody detection and identification, compatibility testing, component preparation and therapy in blood transfusion service, quality control, donor screening and phlebotomy, transfusion reactions and hemolytic disease of the fetus and newborn. MLS 2215 contains all eight of the program's identified learning goals, though in appropriately varying amounts. As noted in the curriculum map, learning goals 2,4,5,6 and 8 are areas of introduction, learning goal 1is emphasized, and learning goals 3 and 7 are utilized. In all cases, the measures show that 100% of the students are reaching all 8 goals at levels of 80% or above, so no curricular or clinical changes are seen as needed at this time. Data in this table are derived from five sections of the course taught in Spring 2008-2012 by Janet Oja and Bill Zundel.

Evidence of Learning: Courses within the Major: MLS 3302

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Exam three focused on pre-use validation of clinical instrumentation	Measure 1: 100% of students will score at least 80% on this exam	Measure 1: 97% of students scored an 80% or better (range: 78 – 100)	Measure 1: One student did not achieve 80% but upon retake they earned the required grade percentage	Measure 1: No changes are needed to this unit exam
	Measure 2: Problem based practical exam containing three validation scenarios.	Measure 2: 100% of students will score at least 80% on the practical exam	Measure 2: 100% of students scored an 80% or better	Measure 2: All students performed adequately on applying their knowledge in a problem based assignment	Measure 2: No changes are needed to this unit practical
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: A series of homework assignments (n= 14) covering; t-Test, F-Test, ANOVA, Chi-Squared Test, Correlation, Reference Ranges, Standard Error of the Mean, Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value, Accuracy, Precision, Minimum Detection Limit	Measure 1: 100% of students will compute and interpret the findings.	Measure 1: 100% of students completed all homework assignments and either interpreted their findings correctly or understood where they made an error	Measure 1: All students were able to apply common laboratory mathematical calculations and understand their results	Measure 1: No changes are needed to these series of homework assignments
	Measure 2: Two problem based practical	Measure 2: 100% of students will score at	Measure 2: 100% of students scored an 80%	Measure 2: All students were able to apply	Measure 2: No changes are needed to the two

Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	exam	least 80% on the practical exam	or better	mathematical calculations to real laboratory situations	practical exam
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	This course focuses on advanced application of laboratory mathematical theory, research, and management. As such, there are no wet lab procedures taught or conducted	NA	NA	NA	NA
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Five unit examinations covering the theory and application of advanced laboratory practices	Measure 1: 100% of students will score at least 80% on this exam	Measure 1: 97% of students scored an 80% or better (range 78-100)	Measure 1: One student did not achieve 80% but upon retake they earned the required grade percentage	Measure 1: No changes are needed for these examinations
	Measure 2: A series of homework assignment (n=25)	Measure 2: 100% of students will complete the assignment and interpret their findings	Measure 1: 100% of students completed all homework assignments and either interpreted their findings correctly or understood where they made an error	Measure 2: All students were able to apply common laboratory mathematical calculations and understand their results	Measure 2: No changes are needed to these assignments

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 3: Three problem based practical examinations	Measure 3: 100% of students will score at least 80% on the practical exam	Measure 3: 100% of students scored an 80% or better	Measure 3: All students were able to apply advanced laboratory theory to practical situations	Measure 3: No changes are needed to these practical exams
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Three problem based practical examinations	Measure 1: 100% of students will score at least 80% on the practical exam	Measure 1: 100% of students scored an 80% or better	Measure 1: All students were able to apply advanced laboratory theory to practical situations	Measure 1: No changes are needed to these practical exams
Learning Outcome 6: Relate laboratory findings to common disease.	This course focuses on advanced application of laboratory mathematical theory, research, and management. As such, there are no wet lab procedures taught or conducted	NA	NA	NA	NA
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	This is a theory and application based course that does not focus or measure professionalism or ethical behavior	NA	NA	NA	NA

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: An instrument selection presentation and research paper critique	Measure 1: 100% of students must demonstrate adequate presentation and written ability to convey critical findings and conclusions	Measure 1: 100% of students will demonstrated an ability to communicate critical examination of instrumentation and research	Measure 1: 100% of students were able to communicate critical examinations of instrumentation an research	Measure 1: No changes are needed to these assignments

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS3302, Advanced Medical Laboratory Practices is a course that covers advanced theory and application of mathematics, research concepts, and management practices in the clinical laboratory. This course contains five units that cover; basic statistics, experimental design, statistical tools, research study design, critiquing and interpreting of research articles, laboratory instrumentation testing, selection, and pre-use validation, laboratory financial management (management models, financial cost analysis, laboratory budgets, and inventory forecasting), job descriptions, performance appraisals, quality control, and leadership. MLS3302 is a focused advanced level course that deals with very specific areas of clinical laboratory operation and theory. As such, it does not contain all eight of the MLS department program goals. The goals that are covered; 1,2,4,5, & 8, are covered to a high degree (to the utilization level or higher). These data are collected from a single on campus section in the fall semester from 2012. This is my first semester instructing this course and there is a planned major curriculum overhaul subject to this course in the coming year. Currently it is planned to retain key concepts, remove information that is not required for board certification, and add program goal oriented concepts, such as professionalism to this course.

Evidence of Learning: Courses within the Major: MLS 3311

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: A set of 10 multiple choice questions from Exam 1 and Quiz 1	Measure 1: 100% of students will score 80% or better on 10 questions	Measure 1: 100% of students scored 80% or better on 10 questions)	Measure 1: All students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 9 graded laboratory practice sessions and 4 unknown practical exams	Measure 2: 100% of students will correctly perform required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 1: A set of 20 multiple choice questions from Exams 2 and Final Exam	Measure 1: 100% of students will score 80% or better on 10 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully applied mathematical calculations to laboratory situations.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 2 graded laboratory applications of laboratory mathematical calculations	Measure 2: 100% of students will correctly perform mathematical calculations in laboratory situations.	Measure 2: 100% of students correctly performed mathematical calculations in laboratory situations.	Measure 2: All students correctly performed mathematical calculations in laboratory situations.	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use	Measure 1: A set of 20 multiple choice questions from Exams 1 and 2	Measure 1: 100% of students will score 80% or better on 20 questions	Measure 1: 96% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
of quality assurance procedures.				methods.	
	Measure 2: Demonstrate proper knowledge of specimen criteria in a blood bank laboratory setting.	Measure 2: 100% of students will correctly determine proper sample suitability. Students to perform QC on all blood bank reagents	Measure 2: 100% of students were able to correctly determine proper sample suitability for blood bank analysis. QC results accurate.	Measure 2: All students correctly determined proper sample suitability.	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: A set of 20 multiple choice questions from Exams 3 and Quiz 2 and 3	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Assess unknowns with accuracy during 4 laboratory practical exams	Measure 2: 100% of students will score 80% or better on 4 laboratory practical exams	Measure 2: 99% of students scored 80% or better on 4 laboratory practical exams.	Measure 2: Most students performed the required skills during the 4 laboratory practical exams.	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve	Measure 1: A set of 20 multiple choice questions from Exams 2 and 3 and Quiz 2, 3 and 4	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
problems/discrepancies.	Measure 2: Students resolve discrepancies in the 13 laboratory sessions and must correlate patient history to laboratory findings	Measure 2: 100% of students will correctly resolve discrepancies in the 13 laboratory sessions and correlate patient history to laboratory findings	Measure 2: 100% of students were able to correctly resolve discrepancies in the 13 laboratory sessions and correlate patient history to laboratory findings	Measure 2: All students correctly resolved discrepancies in the 13 laboratory sessions and correlated patient history to laboratory findings	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: A set of 25 questions from Exams 2, 3, and the Final Exam	Measure 1: 100% of students will score 80% or better on 25 questions.	Measure 1: 100% of students scored 80% or better on 25 questions	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 2 laboratory sessions students relate laboratory findings to common diseases	Measure 2: 100% of students will perform the required skills in the laboratory	Measure 2: 100% of students were able to relate laboratory findings to common diseases.	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 89% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety procedures.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: 3 essay questions on Exams 2, 3, and Final. 15 case study writ-ups	Measure 1: 100% of students will score 80% or better on essay questions.	Measure 1: 100% of students were able to communicate their knowledge on the essay questions	Measure 1: All students were able to communicate their knowledge on the essay questions	Measure 1: : No curricular or pedagogical changes needed at this time
	Measure 2: Case study write-ups performed in small groups.	Measure 2: Students will be able to communicate effectively in a group setting	Measure 2: 100% of students communicate effectively in the group setting	Measure 2: All students can communicate better as the course progresses	Measure 2: No clinical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.
** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 3311 is an advanced immunohematology course covering advanced blood banking theory and specialized procedures of Immunohematology relevant to blood group serology, antibody detection and identification, compatibility testing, component preparation and therapy in blood transfusion service, quality control, donor screening and phlebotomy, transfusion reactions and hemolytic disease of the fetus and newborn. MLS3311contains all eight of the program's identified learning goals, though in appropriately varying amounts. As noted in the curriculum map, learning goals 1,2,4,5, and 8 are areas of utilization, learning goal 6 is emphasized, and learning goals 3 and 7 are assessed comprehensively. In all cases, the measures show that 100% of the students are reaching all 8 goals at levels of 80% or above, so no curricular or clinical changes are seen as needed at this time. Data in this table are derived from five sections of the course taught in Fall 2008-2012 by Janet Oja and Bill Zundel.

Evidence of Learning: Courses within the Major: MLS 3313 Advanced Clinical Hematology and Hemostasis

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: The Unit 1 exam tests the principles of hematology testing. The Unit 5 exam tests the principles of hemostasis testing. 50 multiple choice questions each.	Measure 1: 100% of students will score 80% or better on both exams.	Measure 1: 95% of students scored 80% or better on both exams.	Measure 1: 95% of students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 11 graded laboratory practice sessions and 1 final comprehensive lab exam	Measure 2: 100% of students will correctly perform required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 8 multiple choice questions requiring mathematical calculations in exam 1 and 5	Measure 1: 100% of students will score 80% or better on 8 questions.	Measure 1: 95% of students scored 80% or better on 8 questions.	Measure 1: 95% of students successfully applied mathematical calculations to laboratory situations.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2:4 laboratory sessions requiring applications of laboratory mathematical calculations	Measure 2: 100% of students will correctly perform mathematical calculations in 4 laboratory situations.	Measure 2: 100% of students correctly performed mathematical calculations in 4 laboratory situations.	Measure 2: All students correctly performed mathematical calculations in 4 laboratory situations.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: 50 multiple choice questions from Exam 1 and 10 multiple choice questions from Exam 5	Measure 1: 95% of students will score 80% or better on 60 questions	Measure 1: 95% of students scored 80% or better on 20 questions.	Measure 1: 95% of students successfully demonstrated knowledge of evaluating specimen acceptability and optimal analysis methods.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Demonstrate proper knowledge of specimen criteria in a hematology laboratory setting	Measure 2: 100% of students will correctly determine proper sample suitability.	Measure 2: 100% of students were able to correctly determine proper sample suitability for hematology analysis	Measure 2: All students correctly determined proper sample suitability.	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: 50 multiple choice questions each from exams 2, 3, and 4	Measure 1: 100% of students will score 80% or better on all questions.	Measure 1: 100% of students scored 80% or better on all questions	Measure 1: 100% of students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Evaluate abnormal hematology smears from a wide variety of disorders during 3 laboratory sessions. Assess competency during 1	Measure 2: 100% of students will score 80% or better on the laboratory practical exam and participate in all required laboratory sessions.	Measure 2: 95% of students scored 80% or better on the laboratory practical exam and participated in all required laboratory sessions.	Measure 2: Most students performed the required skills during the laboratory practical exam and required laboratory sessions.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	laboratory practical exam				
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: A set of 15 multiple choice questions from Exams 1 and 5	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students correlate patient history and diagnoses to laboratory findings in 4 laboratory sessions	Measure 2: 100% of students will correctly correlate patient history and diagnoses to laboratory findings in 4 laboratory sessions	Measure 2: 100% of students were able to correctly correlate patient history and diagnoses to laboratory findings in 4 laboratory sessions	Measure 2: All students correctly correlated patient history and diagnoses to laboratory findings in 4 laboratory sessions	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: 50 multiple choice questions each from exams 2, 3, and 4, and 25 questions from exam 5.	Measure 1: 100% of students will score 80% or better on 50 multiple choice questions each from exams 2, 3, and 4, and 25 questions from exam 5.	Measure 1: 100% of students scored 80% or better on 50 multiple choice questions each from exams 2, 3, and 4, and 25 questions from exam 5.	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 4 laboratory sessions students relate laboratory findings to common diseases	Measure 2: 100% of students will perform the required skills in the laboratory	Measure 2: 100% of students were able to relate laboratory findings to common diseases.	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 95% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety procedures.	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Laboratory etiquette and expectations are defined in the syllabus. Measured by punctuality and participation.	Measure 1: 100% of students will be punctual to laboratory sessions, and remain task-oriented throughout the session in order to receive full participation credit.	Measure 1: 95% of students were punctual to laboratory sessions, and remained task-oriented throughout the session and received full participation credit.	Measure 1: Most students demonstrated effective communication skills through punctuality and task-orientedness during laboratory sessions.	Measure 1: : No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 3313 is an advanced hematology course covering the theory and principles of hematology and hemostasis relevant to routine laboratory testing, normal and abnormal body fluid analysis, normal erythrocyte physiology and associated disorders, normal leukocyte physiology and associated non-malignant and malignant disorders, bone marrow evaluation, and normal platelet and coagulation physiology and associated disorders. MLS 3313 contains all eight of the program's identified learning goals, though in appropriately varying amounts. As noted in the curriculum map, learning goal 5 is emphasized, learning

goals 1, 2, 3, and 8 are utilized, and learning goals 4 and 7 are assessed comprehensively. Data in this table is limited due to the short time frame of a new faculty member and reflects an in-progress course in Fall 2012.

Evidence of Learning: Courses within the Major: MLS 3314

<table>
<tr><td colspan="6">Evidence of Learning: Courses within the Major</td></tr>
<tr>
<th>Measurable Learning Goal

Students will…</th>
<th>Method of Measurement

Direct and Indirect Measures*</th>
<th>Threshold for Evidence of Student Learning</th>
<th>Findings Linked to Learning Outcomes</th>
<th>Interpretation of Findings</th>
<th>Action Plan/Use of Results**</th>
</tr>
<tr>
<td rowspan="2">Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.</td>
<td>Measure 1: Each exam covers testing specific to the covered units.</td>
<td>Measure 1: Each student must complete the exam with a score of at least 80%.</td>
<td>Measure 1: All students with passing grades achieved a score of at least 80% on each unit exam.</td>
<td>Measure 1: All students with passing grades showed an acceptable level of understanding of the theory behind the testing discussed.</td>
<td>Measure 1: Findings indicate no changes are needed at this time.</td>
</tr>
<tr>
<td>Measure 2: Students will complete laboratory exercises, which require understanding of the testing methods.</td>
<td>Measure 2: The total points earned from the laboratory must equal at least 80% of the points possible.</td>
<td>Measure 2: All students with passing grades earned at least 80% of the total points possible.</td>
<td>Measure 2: All students with passing grades showed competency of the covered topics and laboratory exercises.</td>
<td>Measure 2: Findings indicate no changes are needed at this time.</td>
</tr>
<tr>
<td rowspan="2">Learning Outcome 2: Apply mathematical calculations to laboratory situations.</td>
<td>Measure 1: Multiple exams include questions covering reactions specific to that unit.</td>
<td>Measure 1: Each student must pass the exam with a score of at least 80%.</td>
<td>Measure 1: All students with passing grades scored at least 80%.</td>
<td>Measure 1: All students with a passing grade can successfully complete laboratory mathematics.</td>
<td>Measure 1: Findings indicate no changes are needed at this time.</td>
</tr>
<tr>
<td>Measure 2: Graded laboratory exercises, which include calculations.</td>
<td>Measure 2: All students must correctly complete laboratory calculations.</td>
<td>Measure 2: All students with passing grades earned at least 80% of the total points possible.</td>
<td>Measure 2: All students with passing grades can successfully complete laboratory mathematics.</td>
<td>Measure 2: Findings indicate no changes are needed at this time.</td>
</tr>
<tr>
<td>Learning Outcome 3: Perform laboratory procedures from simple to complex, including</td>
<td>Measure 1: Students will complete a laboratory project that includes several</td>
<td>Measure 1: All students must complete the laboratory with a score of at least 80%.</td>
<td>Measure 1: All students with passing grades earned a score of at least 80%.</td>
<td>Measure 1: All students with passing grades can successfully complete laboratory testing</td>
<td>Measure 1: Findings indicate no changes are needed at this time.</td>
</tr>
</table>

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
specimen collection and processing, analysis, *(CONT)* interpretation, and use of quality assurance procedures.	exercises ranging in difficulty.			procedures ranging in difficulty.	
	Measure 2: Demonstrate knowledge of accurate sample requirements and collection procedures.	Measure 2: Students will assess samples submitted for testing for acceptability.	Measure 2: All students with passing grades have accurately demonstrated knowledge of sample requirements.	Measure 2: All students can assess samples for testing as appropriate.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students will correlate theory and terminology in all laboratory exercises.	Measure 1: Students will complete all laboratory correlation activities with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can correlate theory to practical laboratory situations.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Students must complete the verification exercise that requires knowledge of theory.	Measure 2: Students must complete the verification with at least 80%.	Measure 2: All students with passing grades earned a score of at least 80%.	Measure 2: All students with passing grades can correlate theory to laboratory situations.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Students will evaluate a collection of tests to identify discrepancies.	Measure 1: All students must pass the panel exam with at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades are able to correlate multiple results for the identification of erroneous entries.	Measure 1: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 2: The laboratory verification exercise will require the students to troubleshoot multiple situations.	Measure 2: All Students must correct discrepancies in order to report out verification results with at least 80% accuracy.	Measure 2: All students with passing grades earned a score of at least 80%.	Measure 2: All students with passing grades are able to identify and correct discrepancies in order to provide accurate results.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: Each unit exam will test the student's ability to correlate laboratory findings to common diseases.	Measure 1: Each student must pass the exam with a score of at least 80%.	Measure 1: All students with passing grades earned a score of at least 80%.	Measure 1: All students with passing grades can accurately correlate laboratory findings to common diseases.	Measure 1: Findings indicate no changes are needed at this time.
(CONT)	Measure 2: Class assignments will require the students to understand disease states in order to determine if the results are acceptable.	Measure 2: Students must identify laboratory results that are not consistent with patient diagnoses.	Measure 2: All students with passing grades have accurately correlated laboratory findings on assigned activities.	Measure 2: All students with passing grades can correlate laboratory findings to disease states covered in the course.	Measure 2: Findings indicate no changes are needed at this time.
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: The final exam contains 30 questions that cover professional behavior.	Measure 1:Students must pass the test with a score of at least 80%.	Measure 1: All students with passing grades scored at least 80% on the test.	Measure 1: All students with passing scores have an introductory understanding of professional behavior.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Adherence to proper laboratory dress code and common regulatory requirements (i.e.	Measure 2: Students must comply with dress code requirements for OSHA and HIPAA requirements.	Measure 2: All students with passing grades properly gowned laboratory clothing (i.e. lab coat) and showed	Measure 2: All students with passing grades are aware of proper laboratory attire and HIPAA regulations that	Measure 2: Findings indicate no changes are needed at this time.

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	HIPAA)		compliance to HIPAA regulations they were exposed to.	are discussed.	
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: The verification exercise requires the students to submit a validation plan and an executive summary.	Measure 1: All verification and validation activities but earn a grade of at least 80%.	Measure 1: All students with passing grades earned at least 80% on the verification and validation exercises.	Measure 1: All students with passing grades have shown appropriate written communication skills.	Measure 1: Findings indicate no changes are needed at this time.
	Measure 2: Instructor/ Professor observation of interactions amongst peers.	Measure 2: All students must adhere to the no hazing policy outlined in the course syllabus.	Measure 2: All students with a passing grade have interacted appropriately with their colleagues.	Measure 2: All students with passing grades know the importance of prompt and professional interaction.	Measure 2: Findings indicate no changes are needed at this time.

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

   Summary: MLS 3314 is an advanced clinical chemistry course covering the theory and principles of clinical chemistry, including protein catabolism, carbohydrate metabolism, safety, regulatory agencies, non-protein nitrogen compounds, instrumentation validation, electrolyte balance, Lipids, enzymology, therapeutic drug monitoring, toxicology, analytical principles, and endocrinology. MLS 3314 contains all of the eight identified learning goals. The exposure level of each goal in this course is appropriate for the advanced students.

Evidence of Learning: Courses within the Major: MLS 3316

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: 3 quizzes (50% of questions), 4 exams (75% of questions)	Measure 1: 100% of students will score 80% or better on all test questions (quizzes are excluded)	Measure 1: Approx. 86% of students scored 80% or better all exams (avg. 31 of 36 students)	Measure 1: 86% of students successfully demonstrated theory underlying laboratory testing	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 9 weeks of graded laboratory activities	Measure 2: 100% of students will score 80% or better by correctly performing required laboratory skills	Measure 2: 100% of students were able to correctly perform required laboratory skills	Measure 2: All students correctly performed required laboratory skills	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: 1-2 questions on exam 1 and exam 2, multiple choice	Measure 1: 100% of students will score 80% or better math questions	Measure 1: 100% of students scored 80% or better on math questions	Measure 1: All students successfully applied mathematical calculations to laboratory situations	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: 3 weekly laboratory activities involving mathematical calculations.	Measure 2: 100% of students will score 80% or better on mathematical calculations in laboratory situations	Measure 2: 100% of students correctly performed mathematical calculations 80% or better in laboratory situations	Measure 2: All students correctly performed mathematical calculations in lab situations 80% of the time or better	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: 5 weeks of graded laboratory activities involving identification of bacterial unknowns, 4 week of molecular diagnostics lab activities	Measure 1: 100% of students will score 80% or better on laboratory activities	Measure 1: 100% of students scored 80% or better overall on final course laboratory grade	Measure 1: All students successfully scored 80% or better overall on final course laboratory grade	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Demonstrate proper knowledge of quality assurance procedures in clinical microbiology laboratory	Measure 2: 100% of students will correctly determine proper quality assurance procedures in clinical microbiology laboratory	Measure 2: 100% of students were able to correctly determine proper quality assurance procedures in clinical microbiology laboratory	Measure 2: All students correctly determined quality assurance procedures in clinical microbiology laboratory	Measure 2: No clinical changes needed at this time
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: All course exams and quizzes have 50% of questions that correlate theory/terminology to laboratory testing	Measure 1: 100% of students will score 80% or better on 20 questions.	Measure 1: 100% of students scored 80% or better on 20 questions	Measure 1: All students successfully correlated laboratory theory and terminology to practical laboratory work.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Assess 9 weeks of laboratory activities that each correlate laboratory theory and terminology to practical laboratory	Measure 2: 100% of students will score 80% or better overall on course laboratory activates	Measure 2: 100% of students scored 80% or better overall on course laboratory activates	Measure 2: All students performed the required skills during 9 laboratory activates	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	work				
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Four case study homework assignments in Unit 6, 7, 8, and 11.	Measure 1: 100% of students must complete assignments	Measure 1: 100% of students completed the four assignments.	Measure 1: All students successfully demonstrated problem solving skills	Measure 1: No curricular or pedagogical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: Exam 2 contains approximately 25% diagnostic questions	Measure 1: 100% of students will score 80% or better on the diagnostic questions	Measure 1: 100% of students scored 80% or better on the diagnostic questions	Measure 1: All students correctly related laboratory findings to common diseases.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: In 5 of the weekly laboratory activities, specimen source of unknowns is related to diseases	Measure 2: 100% of students will perform 80% or better relating specimen unknowns to related diseases	Measure 2: 100% of students were able to relate laboratory findings to common diseases 80% of the time	Measure 2: All students correctly related laboratory findings to common diseases.	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend laboratory section and be punctual.	Measure 1: 100% attendance in laboratory section. 95% punctuality	Measure 1: All students attended laboratory section and most were punctual	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 2: Adherence to laboratory dress code and safety procedures	Measure 2: 100% of students will comply with dress code and safety procedures.	Measure 2: 100% of students complied with dress code and safety procedures	Measure 2: All students were in compliance with dress code and safety procedures	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Correct reporting of laboratory results in 9 weekly activities.	Measure 1: 100% of students will correctly report results 80% or better on laboratory reports.	Measure 1: 100% of students were able to correctly report results 80% or better on laboratory reports.	Measure 1: All students were able to correctly report laboratory reports.	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students work in teams for 5 of 9 weekly laboratory activities	Measure 2: 100 % of students will demonstrate effective team work during the 5 weeks of laboratory activates	Measure 2: 100% of students demonstrated effective team work.	Measure 2: All students demonstrated effective team work.	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.
** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

    Summary: MLS 3316 – Advanced Clinical Microbiology and Molecular Diagnostics. This course begins with a comprehensive review of introductory clinical bacteriology and mycology, along with a culture site approach to clinical bacteriology for the laboratory identification of pathogens by traditional manual methods. Diagnostic molecular biology of infectious microorganisms will also be over and will include background of nucleic acid chemistry along with current molecular methodologies of detection. Data in this table are derived from five semesters and two sections/semester of the course taught from spring 2008-2012 by Scott Wright.

Evidence of Learning: Courses within the Major: MLS 4409

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Student participation in physician guided correlation	Measure 1: All students required to attend and participate in discussion	Measure 1: All students participate in discussion	Measure 1: Student participation increases as semester progresses	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: None	Measure 2: None	Measure 2: None	Measure 2: None	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1***	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2:
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: No clinical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend and be punctual.	Measure 1: 95% punctuality	Measure 1: Most students were punctual	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: ***	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: ***	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

*** This course is a 1 credit hour course led by visiting physicians. Case studies are presented and discussed with the students and correlations between laboratory data and patient diagnosis are evaluated.

Summary: MLS 4409 – Clinical Correlation. This course is a 1 credit hour course led by visiting physicians. Case studies are presented and discussed with the students and correlations between laboratory data and patient diagnosis are evaluated. Data in this table are derived from five semesters taught fall 2008-2012 by Dr. Yasmen Simonian.

Evidence of Learning: Courses within the Major: MLS 4411

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students participate in mock CAP inspection	Measure 1: All students will review current CAP standards and prepare a laboratory for inspection	Measure 1: 100% of students participated in mock CAP inspection and submitted a deficiency report to lab manager	Measure 1: All students successfully participated in mock CAP inspection	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students will calibrate laboratory equipment	Measure 2: All students will calibrate laboratory equipment currently in use	Measure 2: 100% of students calibrated laboratory equipment to lab manager standards	Measure 2: All students successfully participated in calibration studies	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Student participation in customer service and emotional intelligence project	Measure 1: All students will participate and develop written responses to customer service case studies	Measure 1: 100% of students participated in customer service and emotional intelligence case studies	Measure 1: All students participated and developed written responses to customer service case studies	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Student functioning as a member of a team	Measure 1: All students will participate in team projects, each taking turns being the project manager	Measure 1: 100% of students participated in team projects, with each taking a turn as project manager	Measure 1: All students participated in and managed the team for all projects	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Evaluation of each team member for effective communication skills and participation in projects	Measure 2: All students will complete evaluations on team members for effective communication skills and participation in group projects	Measure 2: 100% of students completed evaluations on team members for effective communication skills and participation in group projects	Measure 2: All students completed evaluations on team members for effective communication skills and participation in group projects	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 4411 – MLS Simulated Laboratory I. This course teaches fundamental principles for establishing a simulated working laboratory in which students refine technical skills, problem identification and solving, work-load management, and decision-making skills, development of strategies for managing and implementing the rules and regulations that govern medical laboratory testing. MLS 4411 contains 3 of the program's identified learning goals. As noted in the curriculum map, learning goals 4, 7, and 8 are utilized in this course.   Data in this table are derived from five semesters taught fall 2008-2012 by Janet Oja and Gary Nielsen.

Evidence of Learning: Courses within the Major: MLS 4412

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students participate in mock CAP inspection	Measure 1: All students will review current CAP standards and prepare a laboratory for inspection	Measure 1: 100% of students participated in mock CAP inspection and submitted a deficiency report to lab manager	Measure 1: All students successfully participated in mock CAP inspection	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Students will calibrate laboratory equipment	Measure 2: All students will calibrate laboratory equipment currently in use	Measure 2: 100% of students calibrated laboratory equipment to lab manager standards	Measure 2: All students successfully participated in calibration studies	Measure 2: No clinical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: N/A	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Student participation in customer service and emotional intelligence project	Measure 1: All students will participate and develop written responses to customer service case studies	Measure 1: 100% of students participated in customer service and emotional intelligence case studies	Measure 1: All students participated and developed written responses to customer service case studies	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: N/A	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Student functioning as a member of a team	Measure 1: All students will participate in team projects, each taking turns being the project manager	Measure 1: 100% of students participated in team projects, with each taking a turn as project manager	Measure 1: All students participated in and managed the team for all projects	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Evaluation of each team member for effective communication skills and participation in projects	Measure 2: All students will complete evaluations on team members for effective communication skills and participation in group projects	Measure 2: 100% of students completed evaluations on team members for effective communication skills and participation in group projects	Measure 2: All students completed evaluations on team members for effective communication skills and participation in group projects	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 4412 – MLS Simulated Laboratory II. This course is a continuation of MLS 4411. Students staff a simulated medical laboratory and assume responsibilities associated with all facets of laboratory operations. Clinical and academic faculty serves as advisors/managers to each team of students. The process develops team building skills critical to the modern health care setting. MLS 4412 expands to examine issues that cross all health care disciplines. MLS 4412 contains 3 of the program's identified learning goals. As noted in the curriculum map, learning goals 4, 7, and 8 are utilized in this course.   Data in this table are derived from five semesters taught fall 2008-2012 by Janet Oja and Gary Nielsen.

Evidence of Learning: Courses within the Major: MLS 4414

Evidence of Learning: Courses within the Major: MLS 4414					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Multiple choice questions in Management theory Quiz	Measure 1: Students are expected to score 80% or better to prove knowledge and competency	Measure 1: The majority of students were able to achieve 80% or higher competency	Measure 1: Students have proved to have knowledge of management theories	Measure 1: No changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	N/A	N/A	N/A	N/A	N/A
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: Students are assigned to TA a laboratory where they can apply previously learned procedures in education and training and quality assurance.	Measure 1: All students will achieve 90% or better attendance to their assigned labs. Lab instructors evaluate their performance using a rubric.	Measure 1: All students participated as TAs and achieved 90% or better attendance.	Measure 1: All students successfully demonstrated their proficiency in education and training by assisting in laboratory teaching.	Measure 1: No changes needed at this time

Evidence of Learning: Courses within the Major: MLS 4414					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students participate in online discussions analyzing management case studies scenarios and applying the management concepts previously learned.	Measure 1: The majority of students will participate and score 80% or better on all discussions.	Measure 1: The majority of students participated and scored 80% or better on all online discussions.	Measure 1: Students were able to correlate management theory to real life case study situations and management scenarios.	Measure 1: No changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	N/A	N/A	N/A	N/A	N/A
Learning Outcome 6: Relate laboratory findings to common disease.	N/A	N/A	N/A	N/A	N/A

Evidence of Learning: Courses within the Major: MLS 4414					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus.	Measure 1: Students will attend class section and be punctual.	Measure 1: The majority of students attended class sessions unless previously excused	Measure 1: Students attended class sessions and most were punctual. They demonstrated professional conduct and ethical behavior.	Measure 1: No changes needed at this time
	Measure 2: Students will listen to a guest speaker on resume writing and critique each other's resumes.	Measure 2: Students will attend and participate in a resume critique exercise where they will review 3 of their classmates' resumes.	Measure 2: The majority of students attended and participated in a resume critique exercise where they reviewed 3 of their classmates' resumes.	Measure 2: Students attended and participated in a resume critique exercise. They demonstrated professional conduct and ethical behavior.	Measure 2: No changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Students will listen to a guest speaker on interviewing skills and participate in mock interviews.	Measure 1: Students will participate as interviewer and interviewee in mock interview exercise and score 80% or higher in peer evaluations.	Measure 1: The majority of participated in the mock interviews and scored 80% or higher in their peer evaluations	Measure 1: Students were able to apply interviewing skills previously learned in class through class lectures and guest speakers	Measure 1: No changes needed at this time

Evidence of Learning: Courses within the Major: MLS 4414					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 2: Students participate in online discussions analyzing management case studies scenarios and applying the management concepts previously learned.	Measure 2: The majority of students will participate and score 80% or better on all discussions.	Measure 2: The majority of students participated and scored 80% or better on all online discussions.	Measure 2: Students were able to correlate management theory to real life case study situations and management scenarios.	Measure 2: No changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

MLS 4414: Students will apply sound instructional and pedagogical theory. Approaches to management, leadership of groups, human resource management, and technical supervision will also be covered and reinforced through online discussions and case study analysis. Each student will also participate as a laboratory teaching assistant (TA) in a MLS laboratory section assisting the faculty in the administration of the laboratory instruction. Each student will be assigned to a MLS course laboratory section in which expected behavior includes: active participation in laboratory teaching, demonstration of procedures, preparation of laboratory teaching materials and assisting laboratory faculty and students where ever needed.

Evidence of Learning: Courses within the Major: MLS 4417

Evidence of Learning: Courses within the Major: MLS 4417					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Multiple choice questions in Education and Training Quiz	Measure 1: Students are expected to score 80% or better to prove knowledge of pedagogy in the setting of employee training and education.	Measure 1: The majority of students were able to achieve 80% or higher competency	Measure 1: Students proved to have knowledge of pedagogical theories and their use in the workplace.	Measure 1: No changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	N/A	N/A	N/A	N/A	N/A
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: Students are assigned to TA a laboratory where they can apply previously learned procedures in education and training and quality assurance.	Measure 1: Students will achieve 90% or better attendance to their assigned labs.	Measure 1: All students participated as TAs and achieved 90% or better attendance.	Measure 1: All students successfully demonstrated their proficiency in education and training by assisting in laboratory teaching.	Measure 1: No changes needed at this time

Evidence of Learning: Courses within the Major: MLS 4417					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students participate in online discussions and perform a "needs assessment" evaluation in order to find an educational tool that will be useful in any MLS lab or in their place of employment.	Measure 1: Students will participate and score 80% or better on all discussions.	Measure 1: The majority of students participated and scored 80% or better on all online discussions.	Measure 1: Students were able to correlate pedagogical theory to real life needs assessment.	Measure 1: No changes needed at this time.
	Measure 2: Students develop an educational training tool that correlates with their "needs assessment" discussion.	Measure 2: Students will develop a training tool and score 80% or better.	Measure 2: The majority of students participated and scored 80% or better.	Measure 2: Students developed problem-solving skills by assessing training needs and developing an educational tool to assist in meeting that need.	Measure 2: No changes needed at this time.

Evidence of Learning: Courses within the Major: MLS 4417					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	N/A	N/A	N/A	N/A	N/A
Learning Outcome 6: Relate laboratory findings to common disease.	N/A	N/A	N/A	N/A	N/A
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus.	Measure 1: Students will attend class section and be punctual.	Measure 1: The majority of students attended class sessions unless previously excused	Measure 1: Students attended class sessions and most were punctual. They demonstrated professional conduct and ethical behavior.	Measure 1: No changes needed at this time
	Measure 2: Students will listen to guest speakers speaking on subjects such as Quality Assurance, Conflict Resolution, and	Measure 2: Students will write a paper stating their impressions and expressing what they learned after each guest lecture.	Measure 2: The majority of students attended and wrote a paper expressing what they learned.	Measure 2: Students were able to listen to experts in different subjects and receive insights on how to handle managerial situations and receive	Measure 2: No changes needed at this time

Evidence of Learning: Courses within the Major: MLS 4417					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Recruiting Techniques.			tips on appropriate pedagogical and recruiting techniques.	
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: Students will prepare a presentation/ recruiting activity at a local secondary school.	Measure 1: Students will present a recruiting activity to secondary education students telling them more about the MLS program.	Measure 1: The majority of students presented a recruiting activity to secondary education students telling them more about the MLS program.	Measure 1: Students applied education and training skills previously learned in class through class lectures, discussions, and guest speakers. Students were also able to improve their oral communication skills.	Measure 1: No changes needed at this time
	Measure 2: Written assignments in the form of reflective TA logs for each lab in which students assist.	Measure 2: Students will write a log entry for each lab session they TA and score 80% or better.	Measure 2: The majority of students participated and scored 80% or better on TA logs.	Measure 2: Students were able to improve their written communication skills by means of reflective journaling.	Measure 2: No changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

MLS 4417: Concepts leaned in MLS 4414 will be further applied by students presenting a recruiting activity in secondary schools as well as the development of a training tool designed for a campus MLS lab or their place of employment. Each student will also participate as a laboratory teaching assistant (TA) in a MLS laboratory section assisting the faculty in the administration of the laboratory instruction. Each student will be assigned to an MLS course laboratory section in which expected behavior includes: active participation in laboratory teaching, demonstration of procedures, preparation of laboratory teaching materials and assisting laboratory faculty and students where ever needed. Guest speakers will reinforce concepts of teaching and supervision and allow students to see real life application.

Evidence of Learning: Courses within the Major: MLS 4801

<table>
<tr><td colspan="6" align="center">Evidence of Learning: Courses within the Major</td></tr>
<tr>
<th>Measurable Learning Goal

Students will…</th>
<th>Method of Measurement

Direct and Indirect Measures*</th>
<th>Threshold for Evidence of Student Learning</th>
<th>Findings Linked to Learning Outcomes</th>
<th>Interpretation of Findings</th>
<th>Action Plan/Use of Results**</th>
</tr>
<tr>
<td>Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.</td>
<td>Measure 1: Student groups will develop a research question relating to MLS and also develop methods to address the research question</td>
<td>Measure 1: 100% of student groups will develop a research question relating to MLS and also develop methods to address the research question</td>
<td>Measure 1: 100% of student groups developed a research question relating to MLS and also developed methods to address the research question</td>
<td>Measure 1: 100% of student groups were able to develop a research question relating to MLS and also developed methods to address the research question</td>
<td>Measure 1: No curricular or pedagogical changes needed at this time</td>
</tr>
<tr>
<td>Learning Outcome 2: Apply mathematical calculations to laboratory situations.</td>
<td>Measure 1: Student groups will identify appropriate statistical calculations to be used in analyzing research data collected, if appropriate for research project</td>
<td>Measure 1: 100% of student groups will identify appropriate statistical calculations to be used in analyzing research data collected, if appropriate for research project</td>
<td>Measure 1: 100% of student groups identified appropriate statistical calculations to be used in analyzing research data collected, if appropriate for research project</td>
<td>Measure 1: 100% of student groups were able to identify appropriate statistical calculations to be used in analyzing research data collected, if appropriate for research project</td>
<td>No curricular or pedagogical changes needed at this time</td>
</tr>
<tr>
<td>Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.</td>
<td>Measure 1: Goal not applicable to research class this semester</td>
<td></td>
<td></td>
<td></td>
<td>No curricular or pedagogical changes needed at this time</td>
</tr>
</table>

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: During the process of developing the research methods, students will correlate laboratory theory and terminology to determine what testing is required to answer research question	Measure 1: 100% of students will correlate laboratory theory and terminology to determine what testing is required to answer research question, if appropriate for research project	Measure 1: 100% of students correlated laboratory theory and terminology to determine testing required to answer research question, if appropriate for research project	Measure 1: 100% of students were able to correlate laboratory theory and terminology to determine testing required to answer research question, if appropriate for research project	No curricular or pedagogical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Goal not applicable to research class				No curricular or pedagogical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Goal not applicable to research class				No curricular or pedagogical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend class and be punctual.	Measure 1: 95% attendance in class	Measure 1: Most students attended class	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Submission of 7 class assignments by due date.	Measure 2: 100% of students will submit all 7 class assignments on time	Measure 2: 100% of students submitted class assignments on time	Measure 2: All students submitted class assignments on time	Measure 2: No clinical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: 7 course group assignments demonstrating writing proficiency	Measure 1: 100% of student groups will demonstrate writing proficiency with scores above 80% or better	Measure 1: 100% of students scored better than 80% on written group assignments	Measure 1: All student groups were able to demonstrate writing proficiency on groups assignments	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: demonstrates effective communication and collaboration within research group and with research mentor	Measure 2: 100 % of students will demonstrate effective communication and collaboration within research group and with research mentor	Measure 2: 98% of students demonstrated effective communication and collaboration within research group and with research mentor	Measure 2: Most students were able to effectively communicate in a collaborative fashion within their research group and with mentor	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 4801 – Research Projects in MLS. In this first of two courses, students will identify a significant laboratory related research question and develop an original research design to address that question. Students will work closely with a faculty mentor and will prepare a grant application for funding of supplies and reagents, and write an IRB application. Learning outcomes from goals 2 through 6 were not applicable to this type of course, but are applicable in the second semester of the research course, MLS 4802. Data in this table are derived from five semesters and two sections/semester of the course taught from spring 2008-2012 by Scott Wright.

Evidence of Learning: Courses within the Major: MLS 4802

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 1: Demonstrate knowledge of theory underlying laboratory testing using analytical, interpretive, and problem solving skills.	Measure 1: Student groups will perform identified research methods to address research question	Measure 1: 100% of student groups will complete research methods to address research question	Measure 1: 100% of student groups were able to completed research methods to address research question	Measure 1: 100% of student groups were able to complete research methods to address research question	Measure 1: No curricular or pedagogical changes needed at this time
Learning Outcome 2: Apply mathematical calculations to laboratory situations.	Measure 1: Statistical analysis will be applied research data collected, if appropriate for the data collected during the research project	Measure 1: 100% of the statistical analysis will be completed for research data collected, if appropriate for the data collected during the research project	Measure 1: 100% statistical analysis was completed for research data collected, if appropriate for the data and the research project	Measure 1: 100% of research groups were able to complete statistical analysis on collected research data, if appropriate for the data and the research project	No curricular or pedagogical changes needed at this time
Learning Outcome 3: Perform laboratory procedures from simple to complex, including specimen collection and processing, analysis, interpretation, and use of quality assurance procedures.	Measure 1: Preform laboratory testing of identified research methods to address research question, if appropriate for research project	Measure 1: 100% of laboratory testing will be completed for the identified research methods to address research question, if appropriate for research project	Measure 1: 100% of laboratory testing was completed for the identified research methods to address research question, if appropriate for research project	Measure 1: 100% of student groups were able to complete laboratory testing for the identified research methods to address research question, if appropriate for research project	No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
Learning Outcome 4: Correlate laboratory theory and terminology to practical laboratory work	Measure 1: Students will correlate laboratory theory and terminology to laboratory testing required to answer research question, if appropriate for research project	Measure 1: 100% of students will correlate laboratory theory and terminology to laboratory testing required to answer research question, if appropriate for research project	Measure 1: 100% of students correlated laboratory theory and terminology to laboratory testing required to answer research question, if appropriate for research project	Measure 1: 100% of students correlated laboratory theory and terminology to laboratory testing required to answer research question, if appropriate for research project	No curricular or pedagogical changes needed at this time
Learning Outcome 5: Gather additional laboratory data and apply problem solving skills to solve problems/discrepancies.	Measure 1: Students will evaluate each set of experimental results and modify methods for succeeding experiments, if appropriate for research project	Measure 1: 100% of students will evaluate each set of experimental results and modify methods for succeeding experiments, if appropriate for research project	Measure 1: 100% of students evaluated each set of experimental results and modified methods for succeeding experiments, if appropriate for research project	Measure 1: 100% of students were able to evaluate each set of experimental results and modify methods for succeeding experiments, if appropriate for research project	No curricular or pedagogical changes needed at this time
Learning Outcome 6: Relate laboratory findings to common disease.	Measure 1: If appropriate for research project, students will relate research findings to common disease	Measure 1: 100% of students will relate research findings to common disease, if appropriate for research project	Measure 1: 100% of students related research findings to common disease, if appropriate for research project	Measure 1: 100% of students were able to relate research findings to common disease, if appropriate for research project	No curricular or pedagogical changes needed at this time
Learning Outcome 7: Demonstrate professional conduct and ethical behavior	Measure 1: Attendance and punctuality expectations defined in course syllabus	Measure 1: 100% of students will attend class and be punctual.	Measure 1: 95% attendance in class	Measure 1: Most students attended class	Measure 1: No curricular or pedagogical changes needed at this time

Evidence of Learning: Courses within the Major					
Measurable Learning Goal Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results**
	Measure 2: Submission of 3 class assignments by due date.	Measure 2: 100% of students will submit all 3 class assignments on time	Measure 2: 100% of students submitted class assignments on time	Measure 2: All students submitted class assignments on time	Measure 2: No clinical changes needed at this time
Learning Outcome 8: Demonstrate effective communication skills and behaviors with colleagues in the program and in the laboratory	Measure 1: 3 course group assignments demonstrating writing proficiency	Measure 1: 100% of student groups will demonstrate writing proficiency on 3 assignments with scores above 80% or better	Measure 1: 100% of students scored better than 80% on written group assignments	Measure 1: All student groups were able to demonstrate writing proficiency on groups assignments	Measure 1: No curricular or pedagogical changes needed at this time
	Measure 2: Demonstration of effective communication and collaboration within research group and with research mentor	Measure 2: 100 % of students will demonstrate effective communication and collaboration within research group and with research mentor	Measure 2: 98% of students demonstrated effective communication and collaboration within research group and with research mentor	Measure 2: Most students were able to effectively communicate in a collaborative fashion within their research group and with mentor	Measure 2: No curricular or pedagogical changes needed at this time

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.
** MLS department policy states that not achieving a minimum competency of 80% overall will result in a letter grade of C. A grade below B- is not considered passing for students wishing to complete the MLS (MT) program.

Summary: MLS 4802 – Research Projects in MLS II. This course is a continuation of MLS 4801. Students will continue working on their original research project that was initiated fall semester. After completing the project, students will present their research findings in poster and oral formats, along with preparing a forma manuscript for publication in the university undergraduate research journal ERGO and possibly in other appropriate scientific journals.   Learning outcomes from goals 2

through 6 were not applicable to this type of course, but are applicable in the second semester of the research course, MLS 4802. Data in this table are derived from five semesters and two sections/semester of the course taught from spring 2008-2012 by Scott Wright.

Evidence of Learning: High Impact or Service Learning

Evidence of Learning: High Impact Service Learning					
Measurable Learning Outcome Students will…	Method of Measurement Direct and Indirect Measures*	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Learning Outcome 1.A:	Measure 1: (Ex. A set of 10 multiple choice questions from Exam 1)	Measure 1: (Ex. 85% of students will score 80% or better on 10 questions)	Measure 1: (Ex. 93% of students scored 80% or better on 10 questions)	Measure 1: (Ex. Students successfully demonstrated interpretation skills)	Measure 1: (Ex. No curricular or pedagogical changes needed at this time)
	Measure 2:	Measure 2:	Measure 2:	Measure 2:	Measure 2:
Learning Outcome 2.A:	Measure 1: (Ex. Results of standardized test)	Measure 1: (Ex. 85% of students will score at or above the national average)	Measure 1: (Ex. 90% of students scored above national average)	Measure 1: (Ex. Students successfully demonstrated competence; lowest average score was in transfer of knowledge, where only 69% of questions were answered correctly	Measure 1: (Ex. Faculty agree to include review of transfer in all related courses; this outcome will be reassessed during next review
	Measure 2:	Measure 2:	Measure 2:	Measure 2:	Measure 2:

*At least one measure per objective must be a direct measure. Indirect measures may be used to supplement evidence provided via the direct measures.

Summary Information (as needed)

E. Academic Advising:

Advising Strategy and Process: The MLS department actively advises each potential and current MLS student. The process used is based on whether the student is an on-campus or online student.

1. Campus students: Each of the faculty in the department is required to serve as an academic advisor. Currently, there are two pre-professional advisors (Track II) and four laboratory professional advisors (Track I). All incoming students interested in the MLS campus programs are required to meet with a campus faculty (http://www.weber.edu/mls/degrees/campus/AASapplicaton.html) prior to registration. MLS students who have been accepted into either the AAS or BS programs are strongly encouraged to meet with a faculty advisor once every semester. All graduating students for the AAS and BS degrees are required to meet with the program director two semesters prior to graduation to insure graduation requirements have been met.

After making an advising appointment through the department secretary, the individual meets with the faculty advisor. Advisement forms and WSU Cattracks are both used to explain the curriculum requirements and to review transcripts with the student. An academic plan is developed and a copy provided for the student. The students are encouraged to routinely monitor their academic progress through Cattracks.

2. Online students: Academic advising for online students begins once the student indicates interest in an MLS program, and continues through graduation. There are three academic advisors for the online programs and they are available by phone or email during working hours year round.

Academic plans are developed for each student and provided to the student upon acceptance to the program. Students are encouraged to periodically contact their online advisor and to routinely monitor their academic progress through Cattracks.

Effectiveness of Advising: The MLS department conducted an online survey to assess the level of student satisfaction of the advising they receive from the MLS academic advisors. Data was collected during the first week of November, 2012. 138 students responded, representing approximately 35% of students in the MLS online and the campus programs. (*See Appendix G for complete results of the Academic Advising Survey*.) In summary, 61% were very satisfied, 35% were satisfied and 3.4% were not satisfied with the quality of advising they receive from the MLS academic advisors.

Past Changes and Future Recommendations: During the past academic year, we have increased the number of campus advisors from three faculty to include all six of the MLS faculty. Also, there are now two pre-professional advisors (Track II).

F. Faculty

Faculty Demographic Information: The MLS department consists of six full time faculty, one part time faculty, and nine adjunct faculty. (*See Appendix B for a profile of faculty in the department.*)

Programmatic/Departmental Teaching Standards: Teaching standards are determined by three sources: (1) student courses evaluations (2) yearly departmental reviews with each faculty and adjunct and (3) the College and University Rank and Tenure policies and procedures. For additional details on these, see Evidence of Effective Instruction below. These standards are communicated to the faculty by the Department Chair, Dean, and other key academic administrators of the university such as the Associate Provost and Provost. Information concerning college and university tenure policies are provided to new faculty in their first two years as well as through campus workshops provided for all university faculty

Faculty Qualifications: Four of the full time faculty have terminal degrees in MLS or related fields; Scott Wright, Janet Oja, Janice Thomas, and Matt Nichalou. One faculty, Scott Wright, is tenured is a full professor. Three faculty are assistant professors on tenure track; Janet Oja, Janice Thomas, and Matt Nichlaou. One faculty, Ryan Rowe, is working toward his terminal degree and is projecting to be completed by 2014. Dan McEntire is on a one year faculty appointment and has an MLS BS degree. (*See Appendix B for a profile of faculty in the department.*)

All of the MLS faculty and adjuncts hold a current certification through the ASCP Board of Certification. (*See Appendix B and C for a profile of faculty and adjuncts in the department.*)

Evidence of Effective Instruction
   Campus faculty:
   i.   Student evaluations are completed in each course by the students at the end of the semester. The evaluations are compiled and are made available to the department chair and all MLS department faculty.
   ii.   An annual review is conducted once a year during the summer with individual faculty and the department chair. Student evaluations are reviewed and discussed in detail. Goals and expectations are set and reviewed.
   iii.   Second year reviews of new tenure track faculty made by the department chair according to university policy, and with the results submitted to the faculty professional files

iv. Peer reviews of all faculty are conducted during the third and sixth years of the tenure process by a department peer review committee using guidelines established by the college ranking and tenure document.

v. Ranking and tenure reviews are conducted by a college ranking and tenure committee in accordance to the policy and procedures of the university and college. The evaluation measures effectiveness in teaching, scholarship and service. The results are submitted to the faculty professional files in the department and College;

Adjunct faculty:

i. Student evaluations are completed in each online course by the students at the end of the semester. The evaluations are compiled and are made available to the department chair, each adjunct and also the adjunct's MLS campus faculty mentor.

ii. An annual review is conducted once a year during the summer with the adjunct, the faculty mentor and the department chair. Student evaluations are reviewed and discussed in detail. Goals and expectations are set and reviewed.

Mentoring Activities:
Student mentoring: The students and faculty of the MLS department are actively engaged in undergraduate research. As part of the BS curriculum, students are required to take a two semester course, Research Projects in MLS (MLS 4801/4801), during their 3rd year in the program. Students work in groups that are mentored by the MLS faculty based on the discipline of the research project (i.e. chemistry, blood bank, microbiology, hematology, etc.).

Mentoring of new faculty: As new faculty are hired in the department, they are mentored mostly by the department chair, but also by each of the faculty in the department. The department chair serves as a mentor for the tenure process for each eligible faculty.

Diversity of Faculty
The depth and breadth of the expertise within the contract and adjunct faculty is very substantial and provides a tremendous advantage for the department and students as illustrated in the range of course offerings available. (*See Appendix B: Contract/Adjunct Faculty Profile for a list of the ethnic diversity of the department and the areas of expertise of each of the faculty and adjuncts*.)

Ongoing Review and Professional Development
The faculty are strongly encouraged and supported to pursue professional development in terms of scientific publications, attendance and presentations at conferences (CLEC – Clinical Laboratory Educators Conference, ASCLS Conference – American Society for Clinical Laboratory Science, NCUR – National Conference for Undergraduate Research, and CUR – Council for Undergraduate

Research), along with campus teaching seminars and workshops. Faculty who were previously certified under NCA (National Council for Accreditation) are required to complete 36 hours of continuing education over a three year period in order to maintain their certification through ASCP (American Society for Clinical Pathology).

G. Support Staff, Administration, Facilities, Equipment, and Library

Adequacy of Staff: The departmental staff consists of (a) full time secretary, Chris Housley, (b) lab manager, Kent Criddle, (c) one full time online program academic advisor, Cindi Kranek and one half-time online program academic advisor, Teresa Reyes. (d) An additional staff position was recently created for a practicum coordinator, and an individual will be hired by December, 2012. Once this position is filled, the staff is adequate for the program's needs.

    i.   Ongoing Staff Development. The department secretary and online staff have been very active in attending training sessions such as: Several customer services trainings, , INB Banner training, Crystal Reports update, Cat Tracks advising, Cat Tracks exceptions training, Canvas training, , Registrar's boot camp, Lessons for Leaders, GoupWise Calendaring, Get a Handle on New Regulations Coming to Online Education, Scholarship Nominations System, Writing for the Web, Advisor information series, Purple Pride Service Essentials

Adequacy of Administrative Support: The departmental administrative structure includes: (a) Department Chair, Scott Wright, (b) Program Director, Janet Oja, and (c) Online Coordinator, Julie Kakazu. Administrative support is adequate for the program's needs.

H. **Adequacy of Facilities and Equipment:** The office facilities and equipment for individual faculty and staff is adequate.

The department faculty and staff have long recognized that the MLS laboratory equipment somewhat minimal and dated (see Results of Previous Program Reviews below). The department is currently making a significant effort to upgrade laboratory equipment to better simulate an actual clinical environment. During the academic 2012/2013, laboratory equipment purchases will be from the following three areas: 1) internal department funds of approximately $75,000, 2) WSU/DCHP Perkins Grant for $35,996, and 3) Werks Force Grant ($475,000) of which $17,500 will be spent on laboratory equipment. These purchases will place at least one significant piece of equipment in each laboratory disciplines, including a functional LIM system (Laboratory Information System) which will be a first in the 32 years since the department was founded.

During the academic year of 2013/2014, the department will budget approximately $125,000 for equipment purchase and upgrades, in addition to submitting a Perkins Grant for $20,000 to $30,000.

Adequacy of Library Resources: Library resources are judged adequate for the program. The DCHP (Dumke College of Health Professions) librarian has been an excellent resource for the faculty and students in the department and has been extremely supportive.

I. **Relationships with External Communities**

Description of Role in External Communities
External communities consist of:
1. There are 135 hospitals and clinics that serve as clinical sites for MLS campus students to complete their second and third year practicum experiences. The majority of these sites are located throughout Utah, with a concentration along the Wasatch Front. There are sites in the surrounding states of Nevada, Colorado, and Montana. See Appendix E.

2. The MLS department has approximately 750 clinical sites that have affiliation agreements to provide laboratory training for MLS online program students. These sites are located throughout the U.S. including ten international sites. See Appendix H.

3. Agencies, colleges, and companies through which the department has grants, contracts, or has received donations. (*See Appendix F*)

Summary of External Advisory Committee Minutes
The MLS advisory committee last met in October, 2009. The main objective of the meeting was to present several curriculum changes to the committee. One major change involved the campus student's practicum objectives for the AAS and the BS programs. The majority of the committee consisted of lab directors and technicians from area hospitals and clinics that serve as practicum sites for the MLS students. The committee approved of the proposed changes and agreed to provide feedback as the practicums progressed over the coming years. (*See Appendix H and I for current practicum objectives.*)

J. Results of Previous Program Reviews

Problem Identified	Action Taken	Progress
Issue 1: Provide students with the opportunity to become proficient in operation of modern laboratory equipment	Previous 5 Year Program Review:	Note: the last departmental program review was completed in 1993-1994
	Action being taken:	During the academic 2012/2013, laboratory equipment purchases are projected to total $128,500. During the academic year of 2013/2014, the department will budget approximately $125,000 for equipment purchase and upgrades, in addition to submitting a Perkins Grant for $20,000 to $30,000.

Summary Information (as needed)

K. Action Plan for Ongoing Assessment Based on Current Self Study Findings

Action Plan for Evidence of Learning Related Findings

Problem Identified	Action to Be Taken
Issue 1	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:
Issue 2	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:

Action Plan for Staff, Administration, or Budgetary Findings

Problem Identified	Action to Be Taken
Issue 1	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:
Issue 2	Current 5 Year Program Review:
	Year 1 Action to Be Taken:
	Year 2 Action to Be Taken:
	Year 3 Action to Be Taken:
	Year 4 Action to Be Taken:

L. Summary of Artifact Collection Procedure

Artifact	Learning Outcome Measured	When/How Collected?	Where Stored?
(i.e. Final Project Rubric)		(i.e. end of semester)	(i.e. electronic copies)
(i.e. Chi Tester Outcome Report)		(i.e. 2-3 times per semester)	(i.e. electronic format, chi tester warehouse)

APPENDICES

Appendix A: Student and Faculty Statistical Summary

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Student Credit Hours Total	**3,921**	**4023**	**4,669**	**5,341**	**5,714**	**6,230**
Student FTE Total	**130.70**	**134.10**	**155.63**	**178.03**	**190.47**	**207.67**
Student Majors						
Clinical Laboratory Sciences	**379**	**290**	**331**	**437**	**447**	**507**
Program Graduates						
Associate Degree	44	36	49	64	56	66
Bachelor Degree	38	45	44	61	65	56
Student Demographic Profile	**379**	**290**	**331**	**437**	**447**	**507**
Female	190	196	227	285	307	343
Male	189	94	104	152	140	164
Faculty FTE Total	**6.79**	**7.6**	**7.36**	**6.68**	**6.95**	**NA**
Adjunct FTE	1.59	1.91	1.57	1.46	1.73	NA
Contract FTE	5.2	5.69	5.79	5.22	5.22	NA
Student/Faculty Ratio	**19.25**	**17.64**	**21.15**	**26.65**	**27.40528**	**NA**

Note: Data provided by Institutional Research

Summary Information (as needed)

Appendix B: Contract/Adjunct Faculty Profile

Name	Gender	Ethnicity	Rank	Tenure Status	Highest Degree	Years of Teaching	Areas of Expertise
Scott Wright	M	Caucasian	Professor	Full tenure	MS	15	Clinical Microbiology
Janet Oja	F	Caucasian	Assistant Prof	3rd year	MS	4	Immunohematology
Janice Thomas	F	Hispanic	Assistant Prof	1st year	MS	1.5	Online education Urinalysis/Phlebotomy Lab Supervision
Matthew Nichalou	M	Caucasian	Assistant Prof	1st year	DrPH	0.25	Infectious diseases, Microbiology, HIV, Genetics, Statistics
Ryan Rowe	M	Caucasian	Instructor	Non-tenure*	BS	2.5	Clinical Chemistry
Dan McEntire	M	Caucasian	Instructor	Non-tenure	BS	0.5	Hematology
Megan Maciel	F	Caucasian	Adjunct	Non-tenure	BS	6	Clinical Chemistry
Julie Kakazu	F	Caucasian	Adjunct	Non-tenure	BS	4	Clinical Microbiology
Amy Kenyon	F	Caucasian	Adjunct	Non-tenure	BS	1	Immunohematology
Stephanie Schaible	F	Caucasian	Adjunct	Non-tenure	MS	1	Immunohematology, Toxicology
Cindi Kranek	F	Caucasian	Adjunct	Non-tenure	BS	2	Hematology and Urinalysis
Mary Hawse	F	Caucasian	Adjunct	Non-tenure	BS	2.5	Student Research, Simulated Laboratory
Kendal Beazer	M	Caucasian	Adjunct	Non-tenure	BS	1	Clinical Microbiology, Clinical Chemistry, Hematology, Urinalysis
Mechelle Sargent	F	Caucasian	Adjunct	Non-tenure	BS	3	Clinical Chemistry, Hematology
Lauren Scott	F	Caucasian	Adjunct	Non-tenure	BS	0.25	Advanced Microbiology, Molecular Diagnostics

*Currently working on completion of MS degree, after which he will be able to begin progress toward tenure.

Appendix C: Staff Profile

Name	Gender	Ethnicity	Job Title	Years of Employment	Areas of Expertise
Chris Housley	F	Caucasian	Secretary	4	Daily operations of departmental office, records maintenance and retention, appointments/meetings.
Kent Criddle	M	Caucasian	Lab Manager	22	Lab Generalist and Purchasing Agent
Julie Kakazu	F	Caucasian	Online Program Coordinator	4	Manage online program, affiliation agreements, advising, transfer credits for online students, cat tracks exceptions for online students, graduation planning, customer service
Cindi Kranek	F	Caucasian	Online Academic Advisor	2.5	Advise MLS BS online students
Teresa Reyes	F	Hispanic	Online Academic Advisor	1	Advise MLS AAS online students

Appendix D: Financial Analysis Summary

Medical Laboratory Sciences					
Cost	**07-08**	**08-09**	**09-10**	**10-11**	**11-12**
Direct Instructional Expenditures	675,141	757,802	662,125	676,884	779,263
Cost Per Student FTE	5,035	4,869	3,719	3,554	3,752
Funding	**07-08**	**08-09**	**09-10**	**10-11**	**11-12**
Appropriated Fund	629,715	684,312	602,002	617,245	705,043
Other:					
Special Legislative Appropriation					
Grants of Contracts					
Special Fees/Differential Tuition	45,427	73,489	60,124	59,639	74,220
Total	675,141	757,802	662,125	676,884	779,263

FTE	FTE	FTE	FTE	FTE
134.10	155.63	178.03	190.47	207.67

Note: Data provided by Provost's Office

121

Appendix E: External Community Involvement Names and Organizations

The following is a list of hospitals and clinics in Utah, Nevada, Wyoming, and Montana that support summer practicums for MLS campus students.

Name	Organization
	IHC Alta View, InterMountain Med Center, LDS & Riverton hospitals
	IHC InterMountain Central Lab
	IHC Alta View Hospital
	IHC LDS Hospital
	IHC Park City Medical Center
	IHC Riverton Hospital
	IHC American Fork, Orem Community & Utah Valley
	IHC Orem Community Hospital
	IHC American Fork Hospital
	IHC Heber Valley hospital
	IHC Utah Valley Regional Medical Center
	IHC Dixie Regional Medical
	IHC Garfield Memorial
	IHC Valley View Medical Center
	IHC Bear River
	IHC Bryner Clinic
	IHC Delta Community Medical Center
	IHC Fillmore Community Medical Center
	IHC Logan Regional Hospital
	IHC McKay-Dee Hospital
	IHC Primary Children's Medical Center
	IHC Salt Lake Clinic Laboratory
	IHC SanPete Valley Hospital
	IHC Sevier Valley Medical Center
	ARUP-South Jordan Clinical Lab
	Ashley Regional Medical Center
	Beaver Valley Hospital
	Brigham City Community Hospital
	Cache Valley Specialty Hospital
	Castleview Hospital

	Central Valley Medical Center
	Davis Medical Center & Hospital
	Department of Health
	Duluth-St. Luke's Hospital
	Foothill Family Clinic
	Gunnison Hospital
	Huntsman Cancer Center
	Lakeview Hospital
	Mineral Community Hospital
	Mountain View Hospital
	Mountain West Medical Center
	North Eastern Nevada
	Ogden Clinic
	Ogden Regional
	Rangeley District Hospital
	Salt Lake Regional
	St. Marks
	Uintah Basin Medical Center

The following is a list of hospitals and clinic affiliations that support students who have been accepted into our online programs.

Hospital & Name	Hospital State
US Army - Wueezberg USA MEDDAC Army Hospital	AE
US Naval Hospital - Italy	AE
US Naval Hospital - Sigonella, Italy	AE
Banner Health - Fairbanks Memorial Hospital	AK
Central Peninsula General Hospital	AK
Family Medical Center	AK
Mat Su Regional Medical Center	AK
Norton Sound Health Corporation	AK
PHL - Ketchikan Medical Center	AK
Providence - AK - Alaksa Medical Center	AK
Providence - AK - Health & Services (Main agreement)	AK
Providence - AK - Kodiak Island Medical Center	AK
Providence - AK - Matanuska Health Care	AK
Providence - AK - Seward Medical Center	AK
Providence - AK - Valdez Medical Center	AK

South Peninsula Hospital	AK
US Army - Bassett Army Community Hospital	AK
Valley Hospital	AK
Yukon Kuskokwim Health Corporation	AK
Baptist health System - Princeton Baptist Medical Center	AL
Baptist health System - Walker Baptist Medical Center	AL
Evergreen Medical Center	AL
Southeast Alabama Medical Center	AL
Springhill Medical Center	AL
Wiregrass Medical Center	AL
Lyndon B. Johnson Tropical Medical Center	American Samoa
US Army - 35th Medical Group	AP
US Naval Hospital - Guam	AP
US Naval Hospital - Okinawa	AP
US Naval Hospital - Yokosuka	AP
Baptist Health	AR
Johnson Regional Medical Center	AR
Levi Hospital	AR
National Park Medical Center	AR
Advanced Medical Laboratory	AZ
Arizona Heart Hospital Laboratory	AZ
Arizona Regional Medical Center	AZ
Banner Health	AZ
Banner Health - Banner Gateway Medical Center	AZ
Chinle Comprehensive Healthcare Facility	AZ
CHN - Carondelet Health Network (main agreement)	AZ
CHN - Carondelet Holy Cross Hospital	AZ
CHN - St. Joseph's Hospital	AZ
CHN - St. Mary's Hospital	AZ
CHN - Tucson Heart Hospital	AZ
Dignity Health - Chandler Regional Medical Center	AZ
Dignity Health - Mercy Gilbert Medical Center	AZ
Dignity Health - St. Joseph's Hospital and Medical Center	AZ
Dignity Health (formerly Catholic Healthcare West) (Main agreement)	AZ
Flagstaff Medical Center	AZ
Fort Defiance Indian Hospital	AZ
Fort Defiance Indian Hospital Board - Tsehootsooi' Medical Center	AZ
Gilbert Hospital	AZ
Havasu Regional Medical Center	AZ
Kingman Regional Medical Center Laboratory	AZ

Maricopa Medical Integrated Health System	AZ
Mercy Gilbert Medical Center (Dignity Health)	AZ
Navajo Area Indian Health Service	AZ
Northern Arizona Healthcare	AZ
Northwest Medical Center (Northwest Hospital)	AZ
Phoenix Indian Medical Center	AZ
United Blood Services of Arizona	AZ
Valley View Medical Center	AZ
Verde Valley Medical Center (Northern Arizona Healthcare)	AZ
Veterans Affairs - Northern Arizona Veteran Health Care System	AZ
Veterans Affairs - Southern Arizona VA Health Care System (SAVAHCS)	AZ
White Mountain Regional Medical Center	AZ
Yavapai Regional Medical Center - (Main Agreement)	AZ
Yavapai Regional Medical Center - Del E. Webb Oupatient Center	AZ
Yavapai Regional Medical Center - East Campus	AZ
Yavapai Regional Medical Center - West Campus	AZ
Catholic Health Care West - St. Joseph's Medical Center	CA
Catholic Healthcare West - St. Bernardine	CA
Coalinga State Hospital (Laboratory)	CA
David Grant Medical Center	CA
Desert Valley Hospital	CA
Diversified Clinical Laboratories	CA
Fairchild Medical Center	CA
Hi-Desert Medical Center	CA
Laboratory Corporation of America	CA
NCIM Laboratory	CA
Oak Valley Hospital District	CA
Palo Alto Medical Foundation	CA
Rady Children's Hospital Laboratory	CA
St. Bernadine Medical Center	CA
St. Bernardine Medical Center Catholic Healthcare West	CA
Sutter Health Shared Lab	CA
US Army - Weed Army Community Hospital	CA
US Naval Medical Center San Diego	CA
Veterans Affairs - Central California Health Care Systems	CA
Victor Valley Community Hospital	CA
Banner Health - North Colorado Medical Center	CO
Boulder Community Hospital	CO
Cedar Diagnostics, LLC	CO

Centura Health - (Main agreement)	CO
Centura Health - Avista Adventist Hospital	CO
Centura Health - Castle Rock Adventist Hospital	CO
Centura Health - Littleton Adventist Hospital	CO
Centura Health - Mercy Regional Medical Center	CO
Centura Health - Ortho Colorado Hospital	CO
Centura Health - Parker Adventist Hospital (Central Laboratory Services)	CO
Centura Health - Penrose - St. Francis Health Center	CO
Centura Health - Porter Adventist Hospital	CO
Centura Health - St. Anthony Hospital	CO
Centura Health - St. Anthony North Hospital	CO
Centura Health - St. Anthony Summit Medical Center	CO
Centura Health - St. Mary - Corwin Medical Center	CO
Centura Health - St. Thomas More Hospital	CO
Colorado Plains Medical Center	CO
Conejos County Hospital	CO
Denver Health and Hospital Authority Department of Education*	CO
Exempla Good Samaritan Hospital	CO
Exempla Saint Joseph Hospital Laboratory	CO
Kaiser Permanente - Colorado Region	CO
Kremmling Memorial Hospital	CO
Memorial Health System of Colorado Springs	CO
Poudre Valley Health System	CO
Presbyterian/St.Luke's Medical Center	CO
Prowers Medical Center	CO
Quest Diagnostics	CO
Rangely District Hospital	CO
San Luis Valley Reg Hospital	CO
Schryver Medical Lab	CO
Southwest Memorial Hospital	CO
St. Mary's Hosptial & Medical Center	CO
University of Colorado Hospital	CO
US Army - Evans Army Community Hospital	CO
USAF - Academy	CO
Vail Valley Medical Center	CO
Yampa Valley Medical Center	CO
Yuma District Hospital	CO
Bridgeport Hospital	CT
Hospital of St. Raphael	CT
Milford Hospital	CT

Norwalk Hospital	CT
The William W Backus Hospital	CT
Windham Community Memorial Hospital	CT
US Army - Walter Reed Army Medical Center	DC
Adventisit Health System/Sunbelt, INC. Florida Hospital	FL
Cape Canaveral Hospital	FL
Covenant Health Care Labs (CHC)	FL
Doctor's Hospital of Sarasota	FL
Fawcett Memorial Hospital	FL
Flagler Hospital	FL
Florida Hospital	FL
Florida Hospital Waterman	FL
Gambro Healthcare Laboratory	FL
Health First - Holmes Regional Medical Center	FL
Health First - Main Agreement	FL
Integrated Regional Labs - Lawnwood Regional Medical Center	FL
Integrated Regional Labs - main agreement	FL
Jupiter Medical Center	FL
Lakeland Regional Medical Center	FL
Martin Memorial Health Systems Laboratory	FL
Mayo Clinic Jacksonville	FL
Med Health Clinic Lab, LLC	FL
Memorial Hospital of Jacksonville	FL
Mount Sinai Medical Center	FL
Ocala Oncology Center	FL
Parrish Medical Center	FL
Peace River Regional Medical Center	FL
Physician's Primary Care of SW Florida	FL
Sacred Heart on the Gulf	FL
Seven Rivers Regional Medical Center	FL
Shands Jacksonville	FL
Shands Teaching Hospital & Clinics Inc	FL
South Bay Hospital	FL
Suncoast Labs	FL
US Naval Hospital Pensacola	FL
Veterans Affairs - Orlando VA Medical Center	FL
Athens Regional Medical Center	GA
Emory Eastside Medical Center	GA
Nephrology Associates Lab	GA
Piedmont Newman Hospital	GA
Quintiles Laboratories	GA

Southeast Georgia Health System	GA
Sumter Regional Hospital	GA
University Health Care Systems	GA
US Army - D.D. Eisenhower Army Medical Center	GA
Rand Memorial Hospital	Grand Bahamas
Chela Tech Medical Laboratory	Grand Bahamas
Clinical Laboratories of Hawaii - Hilo Medical Center	HI
Diagnostic Laboratory Services	HI
US Army - Tripler Army Medical Center	HI
Buena Vista Regional Medical Center	IA
Burgess Health	IA
Cherokee Regional Medical Center	IA
Iowa Health Systems Des Moines	IA
Iowa Methodist Laboratory	IA
Mercy Hospital - Iowa City	IA
Mercy Medical Center - Centerville	IA
Mercy Medical Center, Cedar Rapids Iowa	IA
Mercy Medical Center/North Iowa	IA
Mitchell County Regional Health Center	IA
Osceola Community Hospital Inc	IA
United Clinical Laboratories	IA
Weland Clinical Laboratories, P.C.	IA
Bear Lake Memorial Hospital	ID
Benewah Medical Center - Coevrd Alene Tribal	ID
Bonner General Hospital	ID
Idaho Falls Hospital	ID
IHC - Cassia Regional Medical Center	ID
Interpath Laboratory - Boise	ID
Mercy Medical Center	ID
North Canyon Medical Center	ID
Oneida County Hospital	ID
Southwest Idaho Advance Care Hospital	ID
St. Luke's Idaho - Boise Regional Medical Center	ID
St. Luke's Idaho - Fruitland	ID
St. Luke's Idaho - Health Care System (Main agreement)	ID
St. Luke's Idaho - Magic Valley Regional Medical Center	ID
St. Luke's Idaho - McCall	ID
St. Luke's Idaho - Meridian Regional Medical Center	ID
St. Luke's Idaho - Mountain States Tumor Institute	ID
St. Luke's Idaho - Regional Medical Center	ID
Steele Memorial Medical Center	ID

Syringa Hospital	ID
Teton Valley Hospital & Surgical Center	ID
USAF - 366th Medical Group Mountain Home Laboratory	ID
West Valley Medical Center	ID
Abraham Lincoln Memorial Hospital	IL
Advocate Health (LGH) - ACL	IL
Advocate Healthcare	IL
Advocate Healthcare - ACL Laboratories	IL
Advocate Healthcare - Advocate South Suburban Hospital	IL
Advocate Trinity Hospital	IL
Good Samaritan Regional Health Center (St. Mary's)	IL
Heartland Regional Medical Center	IL
Illinois Valley Community Hospital	IL
Marshall Browning Hospital Laboratory	IL
Memorial Health System	IL
Memorial Hospital of Belleville	IL
Methodist Medical Center	IL
NIHCC - CGH Medical Center	IL
NIHCC - Freeport Health Network Memorial Hospital	IL
NIHCC - Katherine Shaw Bethea Hospital	IL
NIHCC - Northwest Illinois Health Care Collaboration	IL
NIHCC - OSF St. Anthony Medical Center	IL
NIHCC - OSF St. Anthony Medical Center	IL
NIHCC - Rockford Health Systems	IL
NIHCC - Swedish American Health System	IL
Southern Illinois Healthcare	IL
St. Anthony's Memorial Hospital	IL
St. Margaret's Health	IL
US Army - 375th Medical Group	IL
US Naval Health Clinic Great Lakes	IL
Veterans Affairs - CAPT James A Lovell Federal Health Care Center	IL
Dearborn County Hospital	IN
Diagnostic Clinical Laboratory	IN
Dunn Memorial Hospital	IN
Franciscan St. Elizabeth Health	IN
Greene County General Hospital	IN
In Quest Health System	IN
Ivy Tech Community College	IN
Memorial Hospital and Health Care Center	IN
Morgan Hospital Medical Center	IN
Providence Medical Laboratory	IN

Saint John's Health System	IN
Schneck Medical Center	IN
St. John's Health System/St. Vincent Madison County Health System	IN
St. Vincent Williamsport Hospital	IN
Sullivan County Community Hospital	IN
USMC - Combined Aid Station	INT
US Centers for Disease Control	INT
Auckland City Hospital (New Zealand Blood Service)	INT
Lab Medica Services	INT
Saudi Aramco Medical Services Center	INT
US Army - Scania TMC	INT
King Khalid Military City Hospital, Saudi Arabia	INT
Central Kansas Medical Center	KS
Ellsworth County Medical Center	KS
Hospital District #1 of Rice County	KS
Hutchinson Clinic, P.A.	KS
Kingman Community Hospital	KS
South Central Kansas Medical Center	KS
Southwest Medical Center	KS
St. Catherine Hospital Laboratory	KS
West Wichita Family Physicians	KS
Caldwell County Hospital	KY
Kosair Children's Hospital	KY
Murray-Calloway County Hospital	KY
Norton Audubon Hospital	KY
Norton Hospital	KY
Norton Suburban Hospital	KY
Owensboro Medical Health System (Multicare OMHS)	KY
Pikeville Medical Center	KY
Children's Hospital	LA
Hood Memorial Hospital	LA
Ochsner Medical Center	LA
Regional Medical Center of Acadiana	LA
Terrebonne General Medical Center	LA
West Jefferson Medical Center	LA
Women's and Childrens' Hospital	LA
Beth Israel Deaconess Medical Center	MA
Health Alliance Hospital	MA
Lahey Clinic	MA
Marlborough Hospital	MA
Marlborough Hospital	MA

Nashoba Valley Medical Center	MA
Umass Medical Center/Biotech	MA
Wing Memorial Hospital	MA
Wing Memorial Hospital	MA
Frederick Memorial Hospital	MD
Johns Hopkins Hospital	MD
Kaiser Permanente - Gaithersburg Medical Center	MD
Kaiser Permanente - Regional Laboratory at Rockville	MD
Kaiser Permanente - White Marsh Medical Center	MD
Kaiser Permanente - Woodlawn	MD
Kimbrough Ambulatory Care Center	MD
Prince George Hospital Center	MD
Southern Maryland Hospital Center	MD
US Army - Medical Research Institute of Infections Diseases	MD
US Naval - National Medical Center	MD
Affiliated Laboratory Inc	ME
NorDx - Laboratory (Main Agreement?)	ME
NorDx - Scarborough Campus	ME
NorDx - Southern Maine Medical Center Campus	ME
Alpena Regional Medical Center	MI
Bronson - Battle Creek Hospital	MI
Bronson - Healthcare Group (Main agreement)	MI
Bronson - Lakeview Hospital	MI
Bronson - Methodist Hospital	MI
Charlenoix Area Hospital	MI
Deckerville Community Hospital	MI
Dickinson County Healthcare System	MI
Gratiot Medical Center	MI
Memorial Healthcare Center	MI
Mercy Hospital	MI
Mercy Hospital - Grayling Lab (Trinity Health)	MI
Mount Clemens Regional Medical Center	MI
Pennock Health Services	MI
Regional Medical Laboratories	MI
Veterans Affairs - Medical Center	MI
West Branch Regional Medical Center	MI
Alexandria Clinc P. A.	MN
Allina Hospitals & Clinics	MN
Avera Marshall Regional Medical Center	MN
CentraCare Laboratory Services/St. Cloud Hospital	MN
Cook Hospital	MN

Douglas County Hospital	MN
Fairview Northland Regional Health Care	MN
Hendricks Community Hospital	MN
Medtox Laboratories	MN
New River Medical Center	MN
North Valley Health Center	MN
Olmsted Medical Center	MN
Paynesville Area Health Care System	MN
Rainy Lake Medical Center	MN
Regions Hospital	MN
Ridgeview Medical Center	MN
St. Joseph's Medical Center	MN
St. Luke's	MN
Veterans Affairs - Minneapolis VA Hospital Pathology & Laboratories	MN
Virginia Regional Medical Center	MN
Bothwell Regional Health Center	MO
Boyce and Bynum Pathology Laboratories	MO
Cooper County Memorial Hospital	MO
Doctor Hospital of Springfield Missouri	MO
Fitzgibbon Hospital	MO
Hermann Area District Hospital	MO
I-70 Medical Center	MO
Missouri Baptist Medical Center - BJC Health Care	MO
Missouri Southern Healthcare	MO
Parkland Health Center	MO
Phelps County Regional Medical Center	MO
Poplar Bluff Regional Medical Center	MO
Saint Anthony's Medical Center	MO
SSM - St. Joseph's	MO
SSM - St. Mary's	MO
SSM Health Care St. Louis	MO
SSM Health Care St. Louis - Cardinal Glennon Children's Hospital	MO
SSM Health Care St. Louis - DePaul Health Center	MO
SSM Health Care St. Louis - St. Clare Health Center	MO
SSM Health Care St. Louis - St. Joseph West	MO
SSM Health Care St. Louis - St. Joseph's Wentzville	MO
St. Johns Clinic - Fremont	MO
St. John's Clinic Laboratory	MO
St. John's Hospital Aurora & Cassville	MO
St. John's/St. Francis Hospital	MO

St. Luke's Health System - Hendrick Medical Center	MO
Three Rivers Healthcare North Campus	MO
Veterans Affairs - John J Pershing VAMC	MO
Western Missouri Medical Center	MO
Biloxi Regional Medical Center	MS
Family Medical Center	MS
Keesler Blood Donor Center (Luke & Associates)	MS
Natchez Pathology Laboratory	MS
North Mississippi Medical Center - West Point	MS
North Mississippi Medical Clinics Inc.	MS
USAF - 81st Medical Group	MS
Barrett Hospital & Healthcare	MT
Benefis Health System - East Campus	MT
Big Horn County Memorial Hospital	MT
Billings Clinic Laboratory	MT
Colstrip Medical Center	MT
Daniels Memorial Healthcare Center	MT
Frances Mahon Deaconess Hospital (FMDH)	MT
Holy Rosary Medical Center	MT
Kalispell Regional Medical Center	MT
Livingston Healthcare (Park Clinic)	MT
Marcus Daly Memorial Hospital	MT
Marias Medical Center	MT
Northern Montana Hospital	MT
Pioneer Medical Center	MT
Powell County Memorial Hospital	MT
Rosebud Health Care Center	MT
Rosebud Health Care Center	MT
Roundup Memorial Healthcare	MT
Sheridan Memorial Hospital	MT
St. James Healthcare	MT
St. Jospeh Medical Center	MT
St. Luke Community Hospital	MT
The Ruby Valley Hospital	MT
Craven Regional Medical Center	NC
Durham Internal Medicine Associates	NC
Eastern Carolina Internal Medicine	NC
Mission - Health System	NC
Mission - Hospital	NC
Mission - McDowell Hospital	NC
Moore Regional Hospital	NC

Norvant Health - Thomasville Medical Center	NC
US Army - Womock Medical Center Blood Donor Center	NC
Aurora Medical Park Laboratory	ND
Linton Hospital	ND
Northern Plains Laboratory	ND
Alegent Creighton Health Systems - Bergan Mercy Medical Center	NE
Alegent Creighton Health Systems (main agreement)	NE
Box Butte General Hospital	NE
Chadron Community Hospital	NE
Faith Regional Health Services	NE
Garden County Health Services	NE
Great Plains Regional Medical Center	NE
Henderson Health Care	NE
Regional West Medical Center	NE
West Holt Memorial Hospital	NE
York General Healthcare Services	NE
Catholic Medical Center	NH
Concord Hospital	NH
Elliot Health System	NH
Hackettstown Community Hospital	NJ
Shore Medical Center	NJ
Underwood Memorial Hospital	NJ
Dan C Trigg Memorial	NM
Gerald Champion Medical Center	NM
Gila Regional Medical Center	NM
Guadalupe County Hospital	NM
Roswell Regional	NM
San Juan Regional Medical Center	NM
Silver Health Care	NM
Tricore - Espanola Patient Care Center	NM
Tricore - Plains Regional Medical Center	NM
Tricore - Reference Lab (Main Agreement)	NM
Tricore - Socorro Patient Care Center	NM
Banner Churchill Community Hospital	NV
Dignity Health - St. Rose Dominican Hospitals - Rose de Lima	NV
Dignity Health - St. Rose Dominican Hospitals - San Martin	NV
Dignity Health - St. Rose Dominican Hospitals - Siena	NV
Dignity Health - St. Rose Dominican Hospitals (Main agreement)	NV
Northeastern Nevada Regional Hospital	NV
Quest Diagnostics	NV

South Lyon Medical Center	NV
St. Marys Regional Medical Center	NV
Sunrise Hospital and Medical Center	NV
USAF - 99th Medical Group Michael O'Callahan Federal Hospital	NV
William Bee Ririe Hospital	NV
Adirondack Medical Center	NY
Cardiovascular Medical Association	NY
Champlain Valley Physican's Hospital	NY
Edward John Noble Hospital	NY
Elizabethtown Community Hospital	NY
Hematology Oncology Associates	NY
Nassau University Medical Center Lab	NY
Saratoga Hospital	NY
Seton Health - St. Mary's Hospital Lab	NY
St. James Mercy Hospital	NY
University of Rochester Medical Center	NY
Veterans Affairs - Bath VA Medical Center	NY
Veterans Affairs - Medical Center	NY
Veterans Affairs - VA Hudson Valley Health Care System	NY
Winthrop University Hospital	NY
Affinity Medical Center	OH
CCF - Cleveland Clinic Foundation	OH
Community Memorial Hospital	OH
Community/Catholic Health Partners	OH
Coshocton County Memorial Hospital	OH
Dayton Children's Medical Center	OH
Doctors Hospital Nelsonville	OH
East Liverpool City Hospital	OH
Fairfield Medical Center	OH
Fisher-Titus Medical Center	OH
Holzer Clinic, Inc	OH
Knox Community Hospital	OH
Medical Center of Newark	OH
Mercy Health Partners/Mercy Hospital Anderson	OH
Mercy Health Partners/Western Hills	OH
Mercy Regional Medical Center	OH
Middletown Regional Hospital	OH
New Vision Medical Laboratories	OH
Premier Health Partners - Good Samaritan Hospital	OH
Southern Coos Hospital	OH
TriHealth - Bethesda Oak Lab (main agreement)	OH

TriHealth - Good Samaritan Hospital	OH
University Hospitals - (Main agreement) Health Systems	OH
University Hospitals - Ahuja Medical Center	OH
University Hospitals - Case Medical Center	OH
University Hospitals - Conneaut Medical Center	OH
University Hospitals - Geauga Medical Center	OH
University Hospitals - Geneva Medical Center	OH
University Hospitals - Home Care Services	OH
University Hospitals - Medical Group (UHMG)	OH
University Hospitals - Medical Practices	OH
University Hospitals - St. John Medical Center	OH
University Hospitals - UH Regional Hospitals - Bedford Campus	OH
University Hospitals - UH Regional Hospitals - Richmond Campus	OH
Veterans Affairs Medical Center	OH
Veterans Affairs - Louis Stokes Medical Center	OH
Atoka County Medical Center	OK
Hillcrest Medical Center	OK
Mercy Health Center Inc - Mercy Hospital Ardmore	OK
Mercy Health Center Inc - Mercy Hospital El Reno	OK
Mercy Health Center, Inc.	OK
Norman Regional Health System	OK
Quest Diagnostics - Diagnostic Laboratory of Oklahoma	OK
Regional Medical Laboratory Inc.	OK
Tulsa Regional Medical Center	OK
USAF - Tinker	OK
Blue Mountain Hospital District	OR
Curry General Hospital	OR
Interpath Laboratory - Holy Rosary Medical Center	OR
Interpath Laboratory - Pendleton	OR
Kaiser Permanente Regional Lab	OR
Kaiser Sunnyside Medical Center	OR
Lake District Hospital	OR
Mid Columbia Medical Center	OR
Northwest Cancer Specialists	OR
Oregon Medical Laboratories/Peace Harbor Hospital	OR
PHL - Cottage Grove Community Hospital/ Medical Center	OR
PHL - Peace Harbor Hospital/Medical Center	OR
PHL - Peace Health Laboratories (Main)	OR
PHL - Peace Health Laboratories (West Linn)	OR
PHL - Sacred Heart Medical Center	OR

Providence - OR - Health & Services (Main agreement)	OR
Providence - OR - Hood River Memorial Hospital	OR
Providence - OR - Medford Medical Center	OR
Providence - OR - Newberg Medical Center	OR
Providence - OR - Portland Medical Center	OR
Providence - OR - Seaside Hospital	OR
Providence - OR - St. Vincent Medical Center	OR
Providence - OR - Willamette Falls Medical Center	OR
St. Charles Healthcare System - Pioneer Memorial Hospital	OR
St. Charles Healthcare System Inc. - (Main agreement)	OR
Tuality Community Hospital	OR
Carlisle Regional Medical Center	PA
Einstein Medical Center	PA
Health Network Laboratories	PA
Holy Spirit Hospital	PA
Institute for Transfusion Medicine	PA
Jefferson University Hospitals - Methodist Hospital	PA
Kidney Transplant Laboratory at Einstein Medical Center	PA
Summit Health System - Chambersburg Hospital	PA
Summit Health System - Waynesboro Hospital	PA
UPMC - Bedford Memorial Hospital	PA
UPMC - Children's Hospital of Pittsburgh of UPMC	PA
UPMC - main agreement	PA
Veterans Affairs - Medical Center	PA
Lifespan	RI
Lifespan - The Miriam Hospital	RI
Veterans Affairs - Medical Center	RI
Hampton Regional Medical Center	SC
McLeod Regional Medical Center	SC
MUSC - Medical University Hospital	SC
Oconee Medical Center	SC
US Army - Moncrief Army Community Hospital	SC
US Naval - Beaufort Naval Hospital	SC
Avera Gregory Healthcare Center	SD
Avera McKennan Hospital Laboratory	SD
Avera Queen of Peace Health Services	SD
Mobridge Regional Hospital	SD
Rapid City Regional Hospital	SD
Sanford USD Medical Center	SD
Baptist Memorial Hospital - Tripton	TN
Cookeville Regional Medical Center	TN

ETSU Physicians and Associates	TN
Jackson Madison County General Hospital	TN
Jellico Community Hospital/Careplus Center of Williamsburg	TN
MSHA Johnson City Medical Center	TN
SkyRidge Medical Center	TN
St. Mary's Medical Center of Scott County	TN
Tennessee Oncology	TN
Vanderbilt University Medical Center	TN
Baptist Health System - St. Luke's Hospital	TX
Centennial Medical Center	TX
Childress Regional Medical Center	TX
CHRISTUS Spohn Health System	TX
Elite Clinical Laboratory	TX
Hamilton General Hospital	TX
HCA North Texas Division - Denton Regional Medical Center	TX
HCA North Texas Division - Green Oaks Psychiatric Hospital	TX
HCA North Texas Division - Las Colinas Medical Center	TX
HCA North Texas Division - Medical Center of Arlington	TX
HCA North Texas Division - Medical Center of Lewisville	TX
HCA North Texas Division - Medical Center of McKinney	TX
HCA North Texas Division - Medical Center of Plano	TX
HCA North Texas Division - Medical City Dallas Hospital	TX
HCA North Texas Division - North Hills Hospital	TX
HCA North Texas Division - Plaza Medical Center of Fort Worth	TX
HCA North Texas Division Inc. (main agreement)	TX
Hendrick Medical Center - TX	TX
Highcano Medical Center	TX
Palestine Regional Medical Center	TX
Pampa Regional Medical Center	TX
St. Joseph Medical Center	TX
St. Paul University Hospital	TX
Texas Cancer Association	TX
US Army - Brooke Army Medical Center	TX
US Army - Carl R. Darnall Army Medical Center (Ft. Hood/Copperas Cove)	TX
US Army - William Beaumont Army Medical Center	TX
USAF - 47th Medical Group Laboratory	TX
USAF - Wilford Hall Ambulatory Surgical Center	TX
William Beaumont Medical Center	TX
ARUP	UT
Ashley Regional Medical Center	UT

Beaver Valley Hospital	UT
Brigham City Community Hospital	UT
BYU Student Health Center	UT
Cache Valley Specialty Hospital	UT
Castleview Hospital	UT
Central Valley Medical Center (CVMC)	UT
Davis Hospital - IASIS	UT
Foothill Family Clinic	UT
Gunnison Valley Hospital	UT
Iasis - Jordan Valley Medical Center	UT
IASIS - Salt Lake Regional Medical Center	UT
IHC - Alta View Hosptial	UT
IHC - American Fork Hospital	UT
IHC - Central Laboratory	UT
IHC - Cottonwood Hospital	UT
IHC - Delta Community Medical Center	UT
IHC - Dixie Regional Medical Center	UT
IHC - Dixie Regional Medical Center	UT
IHC - Fillmore Community Medical Center	UT
IHC - Garfield Memorial Hospital	UT
IHC - LDS Hospital	UT
IHC - Logan Regional Hospital	UT
IHC - McKay Dee Medical Center	UT
IHC - Orem Community Hospital	UT
IHC - Park City Medical Center Lab	UT
IHC - Primary Children's Medical Center	UT
IHC - Salt Lake Clinic	UT
IHC - Sandy Clinic	UT
IHC - Sanpete Valley Hospital	UT
IHC - Sevier Valley Medical Center	UT
IHC - Utah Valley Regional Medical Center	UT
IHC - Valley View Medical Center	UT
Lab Corp	UT
Lakeview Hospital	UT
Moab Regional Hospital	UT
Monument Valley Community Health Center	UT
Mountain View Hospital	UT
Mountain West Medical Center	UT
Ogden Clinic	UT
Ogden Regional Medical Center	UT
Pioneer Valley Hospital	UT

Quest Diagnostics	UT
Richards Lab / Quest Diagnostics	UT
San Juan Hospital	UT
St. Mark's Hospital	UT
Uintah Basin Medical Center (UBMC)	UT
Unified State Labs: Public Health	UT
University of Utah Redwood Center, Central Lab	UT
USAF - Hill Air Force Base Clinic	UT
Utah Cancer Specialists	UT
Utah Department of Health Laboratory	UT
Veterans Affairs - Salt Lake City Health Care System	UT
First Lab Virginia	VA
Inova Alexandria Hospital	VA
Montgomery Regional Hospital LewisGale Hospital Montgomery	VA
Riverside Regional Medical Center	VA
Russell County Medical Center Laboratory	VA
US Naval Medical Center Portsmouth	VA
Schneider Regional Medical Center	VI
Brattleboro Memorial Hospital	VT
Central Vermont Medical Center	VT
Gifford Medical Center Laboratory	VT
Rutland Regional Mdeical Center	VT
Auburn Regional Medical Center	WA
Cascade Medical Center	WA
Central Washington Hospital	WA
Deaconess Medical Center	WA
Dynacare Kitstap Laboratories	WA
Enumcllaw Community Hospital	WA
Everett Clinic Laboratory	WA
Evergreen Hospital Medical Center	WA
Grant Coutny Pubilc Hospital District #2 Quincy Valley Medical Center	WA
Kadlec Regional Medical Center	WA
Lab Corp - Dynacare	WA
Lab Corp - Dynacare	WA
Lower Columbia Pathologists	WA
Mid Valley Hospital	WA
Morton General Hospital	WA
MultiCare Health System	WA
Ocean Beach Hospital	WA
Olympic Medical Center	WA

PHL - St Joseph Medical Center - Bellingham	WA
PHL - St. John Medical Center	WA
Providence - WA - Centralia Hospital	WA
Providence - WA - Health & Services (Main agreement)	WA
Providence - WA - St. Mary Medical Center	WA
Puget Sound Blood Center	WA
Quest Diagnostics, Inc	WA
Quincy Valley Medical Center	WA
Rockwood Clinic PS North	WA
Southwest Washington Medical Center	WA
Tri-Cities Laboratory - (administrative address)	WA
Tri-Cities Laboratory - Lourdes Medical Center	WA
ACL Laboratories - Aurora Health Care - Marinette	WI
Beaver Dam Community Hospital	WI
Columbia - St. Mary's Hospital	WI
Froedtert - West Bend Clinic	WI
Froedtert Health Medical Group	WI
Hayward Area Memorial Hospital	WI
Mayo Clinic Health System - Chippeway Valley Inc.	WI
Mayo Clinic Health System - Eau Claire Inc (Main)	WI
Mayo Clinic Health System - Northland Inc.	WI
Mayo Clinic Health System - Oakridge Inc.	WI
Mayo Clinicl Health System - Chippewa Valley Inc	WI
Memoiral Health Care Center	WI
Monroe Clinic	WI
St. Croix Regional Medical Center	WI
St. Joseph's Hospital - Froedtert Health	WI
University of Wisconsin Hospitals & Clinics	WI
University of Wisconsin Medical Foundation, Inc.	WI
Davis Memorial Hospital	WV
Billings Clinic Cody	WY
Castle Rock Medical Center	WY
Cheyenne Regional Medical Center	WY
Evanston Regional Hospital	WY
Memorial Hospital of Converse County	WY
Memorial Hospital of Sweetwater County	WY
Powell Valley Healthcare	WY
South Lincoln Medical Center	WY
St. Johns's Hospital Medical Center	WY
Star Valley Medical Center	WY
USAF - 90th Medical Group	WY

Washakie Medical Center	WY
West Park Hospital	WY

Appendix F: External Community Involvement Financial Contributions

Organization	Amount	Type
Utah Werks	$457,000 (split between EMRC Department)	Grant
Dixie State College	$15,000	Contract
IHC	$100,000	Donation
ARUP	$25,000	Donation

Appendix G: MLS Academic Advisement Survey

1. What level of MLS class are you currently taking this academic year?

	Response Percent	Response count
1000 (for example MLS 1113 or MLS 1123)	25.0%	34
2000	27.2%	37
3000	**43.4%**	**59**
4000	25.7%	35

2.. Are you an online MLS student or an on-campus MLS student?

	Response Percent	Response count
Online student	44.5%	61
Campus student	**55.5%**	**76**

3. Who is your MLS advisor(s)?

	Response Percent	Response count
Dan McEntire	8.8%	12
Cindi Kranek	17.5%	24
Janice Thomas	5.8%	8
Janet Oja	11.7%	16
Julie Kakazu	**22.6%**	**31**
Ryan Rowe	**22.6%**	**31**
Scott Wright	20.4%	28
Teresa Reyes	6.6%	9
Not sure	14.6%	20

4. How satisfied are you with the advising you have received from the MLS advisors?

	Response Percent	Response count
Very satisfied	**61.3%**	**84**
Satisfied	35.0%	48
Not satisfied	3.6%	5

5. How often do you check your transcripts in Cattracks?

	Response Percent	Response count
Never	3.7%	5
Every semester	**86.0%**	**117**
Once an academic year	8.8%	12
I have never heard of Cattracks	1.5%	2

6. How long has it been since you have met with or talked with an MLS advisor?

	Response Percent	Response count
Within the past month	**42.8%**	**59**
Within the past 2-3 months	27.5%	38
Within the past 3-6 months	17.4%	24
Within the past year	5.1%	7
Longer than one year	7.2%	10

7. If you are an online student, how easy is it for you to contact your online MLS advisor?

	Response Percent	Response count
Easy	**66.2%**	**43**
Moderately easy	29.2%	19
Difficult	3.1%	2
Very difficult	1.5%	1

8. If you are an online student, please rate the quality of written communication you have received from your online MLS advisor (i.e. email and/or letters):

	Response Percent	Response count
Excellent	**78.5%**	**51**
Good	18.5%	12
Poor (please provide details in the comment box)	3.1%	2

9. If you are an on-campus student, how difficult is it for you to make an advising appointment with a campus MLS advisor?

	Response Percent	Response count
Easy	**70.0%**	**56**
Moderately easy	28.8%	23
Difficult	1.3%	1
Very difficult	0.0%	0

Appendix H: MLT Competency Evaluation Checklist

Generalist MLT Student Evaluation
Sophomore Practicum
MLS 2256 & 2257

Hospital Name
And
Address

Student Name:_____ Date:_____

Preceptor_____

Please rate the student in the areas noted below. Use the following scoring:
2 = Very Good   1 = Acceptable   0 = Unacceptable   NA =
Not Applicable

AFFECTIVE OBJECTIVES:
Is prepared for clinical and arrives on time   ____
Solicits appropriate questions from preceptor   ____
Interacts well with peers and preceptor   ____
Refrains from making inflammatory statements (sexual,   ____
ethnic, etc.)
Maintain strict patient confidentiality   ____
Adherence to laboratory SOP's   ____
Remains in work area during scheduled time   ____
Adheres to the appropriate dress code   ____
Leaves work area clean and returns supplies to appropriate   ____
storage
Correctly notifies co-workers in the event of chemical   ____
spill/hazard
Correctly correlates patient test values, recognizes critical   ____
test results.
Recognizes erroneous test values (such as hemolyzed,   ____
lipemic, or icteric specimens)

OVERALL COMPETENCY:

Displays organizational skills   ____
Is able to perform tasks after being shown once or twice   ____
Appears to grasp the basis of the procedures observed or   ____
performed
Completes all required work in a willing and thorough   ____
manner and
accepts quality control values only when in acceptable limits

Properly record control results in accordance to the labs   ____
protocol
Perform and document appropriate preventive maintenance   ____
procedures
Follows all safety and other procedural guide lines and uses   ____
all appropriate PPE's
Considering this student's level of education and clinical experience, would you
recommend this student for employment?   **YES   NO**

Please comment on strong points and areas to work on:

_____

_____

_____

_____

_____

WSU Medical Laboratory Science Department
Clinical Competency Record MLS 2256 & 2257

ATTENDANCE RECORD

DATE	TIME IN	TIME OUT	TOTAL HRS	PRECEPTORS SIGNATURE

Suggested Laboratory Activities

PROCEDURE	Observed	Performed	N/A
General			
Orientation			
Safety Overview			
LIS system			
Phlebotomy /Specimen Processing			
SOP's			
Collection process			
Receive and process patient samples			
Recognize unique samples			
Troubleshooting lost and mismatched samples			
Blood draw orders and planning phlebotomy routes			
Identify patient, prepare supplies, and deliver samples to the lab			
Discuss the consequences and corrective action for unintentional needle sticks			
Urinalysis			
Routine Urinalysis Procedures			
Discuss proper urine collection and processing procedures			
Perform and record quality control testing			
Recognize discrepant or abnormal findings			
Perform microscopic analysis of urine samples			
Recognize different sample types or sample abnormalities			
Immunology/Serology			
Routine Immunology/Serology Procedures			
Recognize those factors that influence correct test performance.			

Quality control testing and documentation.			
PROCEDURE	**Observed**	**Performed**	**N/A**
Hematology/Coagulation			
Instrument Operation & Routine Testing			
Reagent Preparation			
Daily Preventative Maintenance			
Weekly Preventative Maintenance			
Instrument Calibration/Verification			
Daily/Shift QC Control Procedures			
Evaluate Cumulative QC Data			
Telephone Communication			
Missed/Overlooked Test Searching			
Differential			
Body fluid Analysis			
Bone Marrows/Collection			
Coagulation testing as appropriate			
Microbiology			
Primary plating			
Plate reading			
Direct and colony Gram stains			
Diagnostic test, follow- up interpretations			
Antibiotic susceptibility testing			
Automated instrumentation			
Parasitology			
Mycology			
Quality Control methods			

PROCEDURE	Observed	Performed	N/A
Blood Bank			
Type and Screen			
Crossmatch			
Data entry procedure including how to look up a patient history			
Antibody identification, selection of units for crossmatch			
Process for issuing blood and blood components			
Emergency release protocol			
Cord blood work-up			
Process for obtaining blood products			
SOP's			
Quality Control			
Storage of blood components			
Patient identification protocol			
Chemistry			
Instrument Operation & Routine Testing			
Reagent Preparation			
Daily, Weekly and Monthly Preventative Maintenance			
Instrument Calibration/Verification			
Daily/Shift QC Control Procedures			
Evaluate Cumulative QC Data			
Telephone Communication			
Missed/Overlooked Test Searching			

Upon completion of the student evaluation please e-mail to ryanrowe@weber.edu
or fax to 801-626-7508 Attn: Ryan

Appendix I: MT Competency Evaluation Checklist

Generalist MT Student Evaluation
Junior Practicum
MLS 4453 & 4454

Hospital Name
And
Address

Student Name:_____ Date:_____

Preceptor_____

Please rate the student in the areas noted below. Use the following scoring:
2 = Very Good   1 = Acceptable   0 = Unacceptable   NA =
Not Applicable

AFFECTIVE OBJECTIVES:
Is prepared for clinical and arrives on time   ____
Solicits appropriate questions from preceptor   ____
Interacts well with peers and preceptor   ____
Refrains from making inflammatory statements (sexual,   ____
ethnic, etc.)
Maintain strict patient confidentiality   ____
Adherence to laboratory SOP's   ____
Remains in work area during scheduled time   ____
Adheres to the appropriate dress code   ____
Leaves work area clean and returns supplies to appropriate   ____
storage
Correctly notifies co-workers in the event of chemical   ____
spill/hazard
Correctly correlates patient test values, recognizes critical   ____
test results.
Recognizes erroneous test values (such as hemolyzed,   ____
lipemic, or icteric specimens)

OVERALL COMPETENCY:

Displays organizational skills   ____
Is able to perform tasks after being shown once or twice   ____
Appears to grasp the basis of the procedures observed or   ____
performed
Completes all required work in a willing and thorough   ____
manner and
accepts quality control values only when in acceptable limits

Properly record control results in accordance to the labs protocol   ____

Perform and document appropriate preventive maintenance procedures   ____

Follows all safety and other procedural guide lines and uses all appropriate PPE's   ____

Considering this student's level of education and clinical experience, would you recommend this student for employment?   **YES   NO**

Student Log Activity Book completed?   **YES   NO**

Please comment on strong points and areas to work on:

_____

_____

_____

_____

_____

WSU Clinical Laboratory Science Department
Clinical Competency Record MLS 4453 & 4454

ATTENDANCE RECORD

DATE	TIME IN	TIME OUT	TOTAL HRS	PRECEPTORS SIGNATURE

Suggested Laboratory Activities

PROCEDURE	Observed	Performed	N/A
General			
Orientation			
Safety Overview			
LIS system			
Management			
Review QC Program of one department			
CQI Program			
Proficiency Testing Review Process			
Personnel Performance Problems			
Inventory Control			
Personnel Scheduling			
STAT Tracking			
Tracking post-analytical reporting errors			
Phlebotomy /Specimen Processing			
Collection process			
Recognize unique samples			
Troubleshooting lost and mismatched samples			
Blood draw orders and planning phlebotomy routes			
Identify patient, prepare supplies, and deliver samples to the lab			
Perform the phlebotomy procedure			
Verify accuracy of orders			
Urinalysis			
Routine Urinalysis Procedures			
Discuss proper urine collection and processing procedures			
Perform and record quality control testing			
Recognize discrepant or abnormal findings			
Perform microscopic analysis of urine samples			
Recognize different sample types or sample abnormalities			

PROCEDURE	Observed	Performed	N/A
Immunology/Serology			
Routine Immunology/Serology Procedures			
Recognize those factors that influence correct test performance.			
Quality control testing and documentation.			
Hematology/Coagulation			
Instrument Operation & Routine Testing			
Reagent Preparation			
Daily Preventative Maintenance			
Weekly Preventative Maintenance			
Instrument Calibration/Verification			
Daily/Shift QC Control Procedures			
Evaluate Cumulative QC Data			
Telephone Communication			
Missed/Overlooked Test Searching			
Differential			
Body fluid Analysis			
Bone Marrows/Collection			
Coagulation testing as appropriate			
Microbiology			
Primary plating			
Plate reading			
Direct and colony Gram stains			
Diagnostic test, follow- up interpretations			
Antibiotic susceptibility testing			
Automated instrumentation			
Parasitology			
Mycology			
Quality Control methods			

PROCEDURE	Observed	Performed	N/A
Blood Bank			
Type and Screen			
Crossmatch			
Data entry procedure including how to look up a patient history			
Antibody identification, selection of units for crossmatch			
Process for issuing blood and blood components			
Emergency release protocol			
Cord blood work-up			
Process for obtaining blood products			
SOP's			
Quality Control			
Storage of blood components			
Patient identification protocol			
Chemistry			
Instrument Operation & Routine Testing			
Reagent Preparation			
Daily, Weekly and Monthly Preventative Maintenance			
Instrument Calibration/Verification			
Daily/Shift QC Control Procedures			
Evaluate Cumulative QC Data			
Telephone Communication			
Missed/Overlooked Test Searching			

Upon completion of the student evaluation please e-mail to ryanrowe@weber.edu
or fax to 801-626-7508 Attn: Ryan