I. Writing Plan Cover Page

Please fill in the gray areas on this form.

July 10, 2014

☐ First Edition of Writing Plan


Medical Laboratory Sciences Program (formerly Clinical Laboratory Sciences)

<table>
<thead>
<tr>
<th>WEC Unit Name</th>
<th>Academic Health Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Allied Health Programs</td>
<td>College</td>
</tr>
<tr>
<td>Donna J. Spannau-Martin</td>
<td>Professor</td>
</tr>
<tr>
<td>WEC Faculty Liaison (print name)</td>
<td>Title</td>
</tr>
<tr>
<td><a href="mailto:spann003@umn.edu">spann003@umn.edu</a></td>
<td>(612) 625-4428</td>
</tr>
</tbody>
</table>

Email

Writing Plan ratified by Faculty

Note: This section needs to be completed regardless of Writing Plan edition.

Date: July 10, 2014

If Vote: 8 / 8

# yes # total

Process by which Writing Plan was ratified within unit (vote, consensus, other- please explain):
The plan was e-mailed to faculty for feedback. The plan was voted on during a scheduled Clinical Laboratory Sciences faculty meeting on July 10, 2014.
II. Unit Profile: MEDICAL LABORATORY SCIENCES

Please fill in the gray areas on this form.

**Number of Tenured and Tenure-Track Faculty:**

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<tr>
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<th>Professors</th>
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<tr>
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<tr>
<td>3</td>
<td>Assistant Professors</td>
</tr>
<tr>
<td>4</td>
<td>Total</td>
</tr>
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</table>

In addition to tenured and tenure-track faculty, there is one instructor and three annually renewable teaching specialist appointments.

**Major(s)**

*Please list each major your Unit offers:*

- Clinical Laboratory Sciences
- Medical Laboratory Sciences

**Total # students enrolled in major as of Summer, 2014**

<table>
<thead>
<tr>
<th>Major</th>
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<td>Medical Laboratory Sciences</td>
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**Total # students graduating with major AY 13-14**

<table>
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<tbody>
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<tr>
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**WEC Process**

<table>
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<th>Date</th>
<th># participated</th>
<th># invited</th>
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</thead>
<tbody>
<tr>
<td>Rating Student Writing</td>
<td>July 22 &amp; 25, 2013</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Writing Error Pilot Study Started</td>
<td>November 4, 2013</td>
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<td>7</td>
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<tr>
<td>Meeting with CLSP faculty/staff</td>
<td>November 8, 2013</td>
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<td>10</td>
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<tr>
<td>Rubric Workshop for CLSP faculty</td>
<td>January 31, 2014</td>
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<tr>
<td>Meeting with CLSP faculty/staff</td>
<td>May 30, 2014</td>
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<tr>
<td>Meeting with CLSP faculty/staff</td>
<td>July 10, 2014</td>
<td>8</td>
<td>10</td>
</tr>
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</table>
III. Signature Page

Signatures needed regardless of Writing Plan edition. Please fill in the gray areas on this form.

Electronic signatures may be submitted in lieu of this page. If this page is submitted as a hard copy, please include a print out of the electronic signature chain here.

WEC Faculty Liaison

Donna J. Spannaus-Martin

WEC Faculty Liaison (print name)

Donna J. Spannaus-Martin

Signature

Professor

Title

July 10, 2014

Date

Department Head/Chair

Janice Conway-Klaassen

Program Director

Print Name

Title

July 10, 2014

Date

Signature

Associate Dean

Barbara Brandt

Associate Vice President

Print Name

Title

Signature

For College of Liberal Arts units only:

CLA - Curriculum, Instruction, and Advising Committee approved Writing Plan on

Date

Print Name

Title

Signature

Date
4. Writing Plan Narrative

Executive Summary (1-page maximum): For what reason(s) did this unit (department, school, college) become involved in the WEC project? What key implementation activities are proposed in this edition of its Writing Plan and what, briefly, is the thinking behind these proposed activities? If this is a second+ edition of this unit's Writing Plan, please also highlight activities that are new to this edition.

The Medical Laboratory Sciences Program (MLSP), formerly the Clinical Laboratory Sciences Program (CLSP), is a relatively small undergraduate program located in the Center for Allied Health Programs in the Academic Health Center. This past year, the program has been in a state of change as the program transitions from the CLSP curriculum to the new MLSP curriculum. The MLSP curriculum expands the number of semesters a student will take MLSP courses, which will provide faculty with additional time to help students build the required skills for professional practice. This past academic year (2013-2014) was the final year many of the CLSP courses were offered, and it was the first time the three “junior year” MLSP courses were offered. As the transition to the MLSP occurs, faculty plan to continue the mapping process of writing in the new curriculum and develop scaffolded writing assignments within courses that facilitate the sequential development of student writing abilities.

Approximately 50% of the MLSP students are non-native English speakers, with a large range in their ability to communicate in written and spoken English. In a healthcare setting, the ability to clearly communicate patient test results and other information is a critical issue for patient care. The student's ability to speak, read, and understand English, including medical vocabulary, is key to their success in the program and the profession. In the past year, as the program began the implementation of the writing enriched curriculum, senior writing samples were evaluated by a writing specialist and two MLS raters. The results led to a pilot study to determine the strengths and weaknesses in the writing of multilingual and native English-speaking students. In the next two years, faculty plan on working with WEC Team to identify specific strategies to improve the writing skills of multilingual writers, and other students who have deficiencies in their writing skills, in order to help them be successful in the MLSP. A summary of the pilot study can be found in Appendix A of this Writing Plan. Findings indicate that native English speaking students and multilingual writers made similar types of errors, but multilingual writers' errors occurred at a higher frequency. Results also showed that the vast majority of local errors did not impede reader comprehension. In the next two years, faculty would like to continue this study, expanding it to include MLS raters in the evaluation of student writing.

In an effort to identify students whose skills (language and other skills) may be insufficient to allow them to be successful in the program, MLSP faculty have developed an admissions skills test to assess an applicant’s readiness for the program and likelihood that they have the skills to be successful. Over the next two years, faculty would like to work with the WEC Team to refine the portion of the admission skills test designed to test reading comprehension and writing ability.

In the past year, faculty have met to perfect the list of desired writing abilities for medical laboratory sciences students, and they have started to develop rubrics that can be used to assess the development of these writing abilities. In the coming years, faculty would like to have additional workshops on Developing & Using Rubrics, Designing Effective Writing Assignments, and Working with Multilingual Writers.
Section #1: DISCIPLINE-SPECIFIC WRITING CHARACTERISTICS

What characterizes academic and professional communication in Medical Laboratory Sciences?

As a healthcare professional, a medical laboratory scientist must be able to address a variety of audiences. For the entry-level practitioner, most often the communication will be to another healthcare professional regarding laboratory testing that has been requested or performed. As with the testing, this communication must be done clearly and accurately. As a profession, we often say that the results can only be as good as the sample that has been collected. For this reason, the entry-level practitioner must also be able to provide clear explanations to patients as to how the patient may need to collect a specimen. The graduates of our program are also often quickly moved into supervisor or managerial roles, so they must also be able to effectively communicate the status of the laboratory to administrators and accrediting bodies.

The following writing characteristics have been identified by faculty and clinical laboratory scientists as being important for successful written communication within the discipline.

- **Explanatory:** Scientific and administrative information is explained logically and at levels of detail that are appropriate for the particular audience being addressed (health care providers, management, peers, and patients)
- **Descriptive:** Can describe procedures, microscopic objects, and results in an accurate and unambiguous manner; medical and scientific terminology is appropriately used
- **Distilled:** Conveys information in a thorough, yet precise and concise manner; without unnecessary information
- **Persuasive:** Can explain reasoning used to make a decision or develop a plan of action
- **Organized in correct format:** Can write in established formats, including those prescribed by regulatory and accrediting organizations, as well as reports for administration and scientific reporting
- **Multi-modal:** Can present information accurately in hand-written formats, as well as electronic formats, including test result reports, proposals, posters, and Powerpoint presentations
- **Informative and Constructive:** Can write in a manner that is clear, helpful and educational to the reader e.g., employee performance appraisals
- **Timely:** Can provide written communications in a timely manner
- **Correct in grammar and spelling**

Section #2: DESIRED WRITING ABILITIES **: With which writing abilities should students in this unit’s majors graduate?

The faculty of the Medical Laboratory Sciences Program have looked carefully at the information provided in the survey sent out to our clinical affiliates concerning the types of writing expected of our students once they graduate. Upon graduation, students need to provide a résumé and cover letter. Once employed, they will be sending out result report forms that may include descriptions of the type of cells observed, electrophoretic patterns, or a description of the antibiotic resistance of the bacteria isolated from a wound. They may be asked to write a standard operating procedure for a new test kit to be used in the laboratory, or instructions for the collection of a seminal fluid sample. As a manager, they will need to write Requests For Proposals for new laboratory equipment, perform employee evaluations, and write responses to accrediting agency reports. The

**Verbs or verbal phrases are typically most useful here, for example, “Take a principled, not arbitrary position” (Geography); “Visually represent designs and explain salient features of a part or concept” (Mechanical Engineering).
faculty would also like our students to be prepared to present findings in professional journals and at professional meetings. The Desired Writing Abilities determined by the faculty in Writing Plan 1 were as follows:

**Desired Writing Abilities:**

- **Explain the meaning of test results:** Graduates should be capable of clearly and accurately providing test results and explaining the meaning of those test results to both the healthcare provider and to the patient.
- **Describe laboratory test specimens and procedures:** Graduates must be able to describe the characteristics of a specimen in a way that clearly conveys to the reader what is being observed.
- **Communicate information in a logical manner:** Graduates should be able to write in an organized and logical manner that allows the reader to follow the rationale for the process, decision, or action.
- **Record test results accurately, neatly, and in an unambiguous fashion:** Graduates must recognize the critical nature of accurate recording of results, including accurately spelling the patient’s name, identification numbers, and laboratory testing information.
- **Report information, including error correction, in an appropriate and legal manner:** Graduates should be able to identify the correct methods for maintaining records of laboratory processes.
- **Document and evaluate quality control for accuracy and precision:** Graduates should be able to interpret quality control charts and describe corrective action when needed.
- **Follow accreditation guidelines for writing procedures or reports:** Graduates should be able to follow reporting guidelines for organizations, e.g., the Food and Drug Administration guidelines for dispensing of blood products.
- **Communicate utilizing multiple modes of communication:** Graduates should be able to communicate clearly using multiple formats, including hand-written, electronic formats, graphs, tables, and oral communication.
- **Analyze the clinical laboratory science literature and incorporate it into practice:** Graduates should recognize and use the scientific literature and incorporate it with evidence-based practice.
- **Reflect on the writer’s abilities and weaknesses to develop an effective resume and cover letter:** Graduates should be able to assess their strengths and weaknesses, and write in a way that honestly describes their abilities.

In July, 2013, two MLS raters and one WEC rater used the above criteria to evaluate the writing of current CLSP students using both a two and a three point scale. Three writing assessments were used: 1) a reflective piece regarding the student’s thoughts on their first week in their clinical experience; 2) a short essay question from a clinical chemistry exam; and 3) a technical procedure from the writing-intensive management course taken during their last semester in the program. The results of these raters is provided in Appendix A. The results of these ratings revealed to faculty that some of the criteria they had developed were not clear, which made the criteria difficult for the raters to use. Also, some of the results indicated the CLS raters and the writing specialist would have very different opinions of the student writings being evaluated. The results also indicated that the grammar issues observed in the student writings could be the result of the multilingual demographics of the CLSP students. This led to the development of a pilot study, which looked at the strengths and weaknesses of CLSP student writers, with the specific interest of looking at types of errors made by both multilingual and native English speaking writers. A summary of this pilot study can be found in Appendix B. The multilingual
specialists evaluated de-identified student writing samples without knowing the primary language of the student writer. After their evaluations were completed, papers were matched to the native language of the writer. The results of the pilot study indicated that the error patterns of the multilingual students and the native English speakers were very similar. Multilingual students just made those errors at a higher frequency. Having this information will allow faculty to focus on those areas that are weaknesses for all students.

One issue that became apparent in both the CLS Ratings and the Pilot Study is the difference in the way MLS faculty and writing specialists look at writing errors. The importance of accurate spelling can be critical in some areas of medical laboratory practice. An example often given is the difference in meaning conveyed between tests and testes, a grammar error made by many of the multilingual students in both written and oral communication. In the 2 point scale of the Ratings study, (with 1 indicating sufficiency and 0 being insufficient), the Writing Specialist gave the CLS students a score of 0.86 on the reflective paper, while CLS raters scored student papers at 0.30. In the Multilingual Pilot Study, multilingual specialists recommended that MLS faculty build their awareness that error is a natural feature of multilingual student writing. Faculty would like to expand the pilot study to include CLS/MLS raters on student papers to get a better understanding of the differences between raters. The MLSP plans to use this data to help faculty develop writing assignments that will help students learn when “writing with an accent” is okay, and when strict adherence to spelling and grammar rules is required.

In an effort to clarify and broaden the desired writing abilities for MLSP students, faculty have developed following list of Desired Writing Abilities for Medical Laboratory Sciences graduates:

- Understand and use standard English, structure, and organization
- Use language effectively in a concise and comprehensible manner
- Communicate in different mediums appropriate to the content, delivery mechanisms, and audience.
- Record and document information accurately and in the appropriate format
- Access, select, critically evaluate, and convey information
- Engage in self-evaluation of writing skills
- Write with honesty, integrity, originality, and contextual sensitivity

**Section #3: INTEGRATION OF WRITING INTO UNIT’S UNDERGRADUATE CURRICULUM:** How is writing instruction currently positioned in this unit’s undergraduate curriculum (or curricula)? What, if any, structural plans does this unit have for changing the way that writing and writing instruction are sequenced across its course offerings? With what rationales are changes proposed and what indicators will signify their impact?

Students are admitted into the Medical Laboratory Sciences Program (MLSP) in either their junior or their senior year. Students in the junior year complete three MLSP courses (MLSP 5511: Principles of Immunobiology, MLSP 5011W: Professional Issues in the Health Care Community, and MLSP 5311: Fundamental Biomedical Laboratory Techniques), as well as complete their liberal education requirements and other science prerequisite courses. The sequence of MLSP courses is shown in Table 1. This past academic year (2013-2014) was the first time courses in Fall1, Spring 1 and Summer 1 have been offered. The 2014-2015 academic year will be the first time that all MLSP courses are being offered.

During the junior year, students will take MLSP 5511: Principles of Immunobiology, MLSP 5011W: Professional Issues in the Health Care Community, and MLSP 5311: Fundamental Biomedical Laboratory
<table>
<thead>
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<th>Semester</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<td>Fall 1 (and Summer 1 for students entering as seniors)</td>
<td>MLSP 5511²</td>
<td>Principles of Immunobiology</td>
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<tr>
<td></td>
<td>MLSP 5011W³</td>
<td>Professional Issues in the Health Care Community</td>
<td>2</td>
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<tr>
<td></td>
<td>MLSP 5311</td>
<td>Fundamental Biomedical Laboratory Techniques</td>
<td>4</td>
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<tr>
<td>Fall 2</td>
<td>MLSP 5012</td>
<td>Foundations in Interprofessional Communication and Collaboration</td>
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<td>MLSP 5013</td>
<td>Scholarly Inquiry and Analysis in Medical Laboratory Sciences</td>
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<td>MLSP 5111²</td>
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<td>MLSP 5112</td>
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<td>MLSP 5211²</td>
<td>Fundamentals in Hematology &amp; Hemostasis</td>
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<td>MLSP 5312</td>
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<td>Spring 2</td>
<td>MLSP 5213²</td>
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<tr>
<td>Summer 2 (or Fall 2, depending on scheduling of clinical experience)</td>
<td>MLSP 5014W</td>
<td>Laboratory Operations and Management in Health Care Systems</td>
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<td></td>
<td>MLSP 5704</td>
<td>Clinical Experience in Transfusion Medicine</td>
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² Course credits for these courses have increased from 2 to 3 credits.

³ New Writing Intensive course
Techniques. The assignments in MLSP 5311 laboratory course are designed to teach students the importance of attention to detail, accurate documentation, and clarity in writing laboratory reports. Inadequate documentation in the clinical laboratory can result in healthcare organizations being fined thousands of dollars, attention to detail, accurate documentation, and clarity in writing laboratory reports. Inadequate documentation in the clinical laboratory can result in healthcare organizations being fined thousands of dollars, incorrect laboratory results being reported, and adverse patient events. MLSP 5311 and MLSP 5011W are lecture courses, and writing assignments are designed to help students to begin to develop their skills in writing effectively, unambiguously, writing to a range of audiences, and in using other modes of communication. The placement of an additional writing intensive course, MLSP 5011W, into the curriculum in the students’ junior year provides the faculty with a way to identify students who may have difficulty with writing, and an opportunity to intervene earlier in directing students to resources for writing help.

In the senior year, students will take only MLSP courses, which are almost entirely science courses. These courses are all in development, and will be offered for the first time in the 2014-2015 academic year. Faculty are currently developing assignments and other assessment tools to be used in these courses. Over the past year, faculty have been incorporating more writing into their courses. However, faculty have not discussed ways to scaffold assignments in their courses to develop the writing abilities in the MLSP students. A mapping process was initiated by faculty to determine the writing competency level (novice, intermediate, or advanced) that students are expected to have attained upon the completion of their courses for each of the Writing Abilities listed in the first writing plan. However, these results have not been combined and evaluated to determine if the writing abilities are being developed in an effective manner. Now that these Writing Abilities have been modified, the program plans to continue in this mapping process, and have faculty will work together to scaffold writing assignments within the curriculum that will help students develop the necessary writing abilities to succeed in the profession.

Section #4: ASSESSMENT of STUDENT WRITING: How does this unit currently communicate writing expectations (see sections #1 and #2) to undergraduate students? What do these expectations look like when they are translated into ratable criteria? How satisfied is the unit faculty that students are adequately familiar with these expectations? What, if any, plans are proposed for disseminating content from this Writing Plan to students?

In July, 2013, the WEC Team and two medical laboratory scientists evaluated writing samples taken from courses in the end of the students; senior year. Three different writing genre were chosen in order to assess students’ writing abilities for different situations. One writing sample was a short answer essay from a clinical chemistry exam. Faculty understand that in a timed examination, students will not have much time to review and edit their response. However, many reports provided by a medical laboratory scientist are time-sensitive. Written responses on exams are not graded on grammar and spelling, but they do provide faculty with a better understanding of the student’s grasp of the concepts and their ability to utilize the vocabulary of the profession when a quick response is required. The other two samples evaluated were from the laboratory management writing intensive course. The first piece was a reflective piece regarding the student’s impressions and thoughts regarding their first week in a clinical laboratory – Was it what they expected, any surprises, etc. This is a “low stakes” and gives students the freedom to “write with an accent” without losing points. The third assignment evaluated was a technical procedure. This is one of the types of writing graduates will most likely need to do in their job. This is also the assignment that is turned in as a draft, students given feedback, and then they turn in a final version for grading. However, due to the technical nature of this assignment, the writing specialist had
difficulty providing feedback for this writing sample. The results of the Rating Study can be found in Appendix A. As stated in Section 2, the results of these ratings revealed to faculty that some of the criteria they had developed were not clear, which made the criteria difficult for the raters to use. Also, some of the results indicated the CLS raters and the writing specialist would have very different opinions of the student writings being evaluated. The results also indicated that the grammar issues observed in the student writings could be the result of the multilingual demographics of the CLSP students. This led to the development of the pilot study, concerning the strengths and weaknesses of CLSP student writers, with the specific interest of looking at types of errors made by both multilingual and native English speaking writers. A summary of this pilot study can be found in Appendix B. The multilingual specialists evaluated de-identified student writing samples without knowing the primary language of the student writer. After their evaluations were completed, papers were matched to the native language of the writer. The results of the pilot study indicated that the error patterns of the multilingual students and the native English speakers were very similar. Multilingual students just made those errors at a higher frequency. Having this information will allow faculty to focus on those areas that are weaknesses for all students.

As the new curriculum is beginning, all faculty have now added the following to the beginning of the syllabi for their courses:

**This is a Writing Enriched Curriculum (WEC) Course.**

In 2013, the Medical Laboratory Science Program began an ongoing program to implement and sustain improvements in undergraduate writing. This initiative acknowledges that writing abilities are an essential communication skill for entry into the workforce as well as graduate or other professional schools.

**Writing Abilities of MLS Graduates:**
1. Understand and use standard English, structure, and organization
2. Use language effectively in a concise and comprehensible manner
3. Communicate in different mediums appropriate to the content, delivery mechanisms, and audience
4. Record and document information accurately and in the appropriate format
5. Access, select, critically evaluate, and convey information
6. Engage in self-evaluation of writing skills
7. Write with honesty, integrity, originality, and contextual sensitivity

In addition, faculty have been working with individuals from the WEC Program to develop rubrics that contain common criteria for MLSP grading rubrics in order to convey to students what is expected for the MLSP writing assignments. The faculty recognize that the work to develop usable criteria for rubrics is far from complete, and this Writing Plan includes a request for an additional rubric workshop early in Fall, 2014. The following list of common criteria was developed by faculty for use in MLSP course rubrics. However, this list should be regarded as a work in progress, and we anticipate this list will significantly change over the next year.

- Effectively communicates content [e.g. specimens, procedures, test results, qualitative data], such that student demonstrates understanding
- Reports or conveys information accurately, according to guidelines (legibility, precision, legal, appropriate correction requirements)
- Demonstrates appropriate use of vocabulary/terminology/context
- Demonstrates proper formatting and mechanics – spelling, grammar, punctuation, syntax, physical formatting (margins, font, spacing)
- Analyzes the medical laboratory literature and incorporate it with evidence-based practice
Assignment specific content requirements can be added as needed.

Faculty have requested to continue to work with the WEC Program on the development and utilization of rubrics that convey faculty expectations.

**Section #5: SUMMARY of IMPLEMENTATION PLANS and REQUESTED SUPPORT:** Based on above discussions, what does the unit plan to implement during the period covered by this plan? What forms of instructional support does this unit request to help implement proposed changes? What are the expected outcomes of named support? What kinds of assessment support does this unit request to help assess the efficacy of this Writing Plan? What are the expected outcomes of this support?

The Medical Laboratory Sciences Program has set four goals for the next two years of implementation of a writing enriched curriculum. These goals are 1) to complete the pilot study on writing weaknesses and strengths multilingual writers and native English speaking writers; 2) to continue the development of effective rubrics; 3) to continue mapping the new curriculum to student writing abilities, and develop assignments that work across the curriculum to build student writing abilities; and 4) refine the writing and reading comprehension portion of the MLSP admission skills test. To accomplish these goals, the faculty plans to implement the following tasks:

**5.1 Extending the Multilingual Writers Pilot Study:** During the past year, the MLSP began a pilot study to look at the types of writing errors made by students and the differences in writing errors between multilingual and native English speaking students. This study was dually funded by the WEC Program and Medical Laboratory Sciences Program. The MLSP plans to continue the work started in the pilot study regarding types of writing errors made by both multilingual and native English speaking students with some modifications. A summary of the pilot study can be found in Appendix A of this Writing Plan.

As the results of the pilot study were evaluated, it became apparent that the multilingual specialists and the MLS faculty looked at grammar errors differently. This is in part due to the technical nature of scientific writing. As an example, in many instances in scientific writing, an article is intentionally missing, but a non-science reader might consider this to be a grammatical error. Thus, it became apparent that some of the errors counted by the multilingual specialists might not actually be errors at all. Also, due to the technical nature of the field and the requirement for accuracy and precision in writing, faculty have appeared to have a smaller tolerance level for some writing errors, such as misspellings, that non-science readers would consider to be minor errors because the meaning of what the student had written was still clear. One modification in the study in the coming year will be the addition of MLS raters of student papers. As part of this modification, each student paper will be evaluated by two raters, one an MLS professional, and the other a multilingual specialist. The purpose of these modifications in this study is to determine if the multilingual specialists and MLS professionals are classifying errors differently. These data will also help facilitate discussions with faculty concerning when the absence of grammatical errors is critical and when these errors could be acceptable - “writing with an accent.” As this writing study is completed, faculty would like to begin working with the staff of WEC to develop strategies and writing assignments that will assist multilingual writers and other students with poor writing skills in the improvement of their writing skills. To facilitate this, workshops on working with multilingual writers and the development of effective writing assignments will be given.

**5.2 Rubric Development and Related Workshops:** In the past year, the WEC staff gave one workshop on developing rubrics for the assessment of student writing. At this time, faculty developed some common criteria for the assessment of student writing abilities. However, faculty realize that these criteria need additional
development and faculty have expressed a strong desire to have an additional workshop on rubric development and usage. In the coming year, the MLSP plans to continue the work on the development and use of rubrics in order to provide students with clear expectations concerning writing in the program and the profession. Early in Fall, 2014, faculty would like the WEC staff to provide another workshop and continue to work with us on rubric development. Additional workshops that will help faculty in developing writing enhanced courses over the next two years would include Designing Effective Writing Assignments, Working with Multilingual Writers, and the Development of Five Minute Writing Workshops.

5.3 Curriculum mapping: As the courses in the new MLSP curriculum are being developed, the faculty would like to begin a mapping process to map the writing assignments are being given in each course, the specific writing skills being assessed in the assignment, and the outcomes of these assessments. Faculty plan to use this information to continue to refine assignments, such that student writing assignments are scaffolded in order to facilitate the development of their writing skills. As the faculty began the process of scaffolding assignments across the MLSP curriculum, the incorporation of the classification of assignments as high stakes or low stakes concerning grammatical errors would also be examined. The MLSP is asking for funding for a part-time research assistant/teaching specialist to work with faculty in mapping the WEC outcomes in this curriculum mapping tool. Following the completion of a semester, the research assistant would talk with each course director to determine the writing assignments used, the writing ability being assessed in the assignment, and the competency level achieved in the assignment. The research assistant would be supervised by the MLSP WEC liaison, Donna Spannaus-Martin. Depending on the qualifications of the individual, they would meet with Dr. Spannaus-Martin at least every other week, and possibly weekly. At the end of the each semester, the research assistant would provide a report containing a list of the writing assignments, desired writing ability being assessed, and the percent of students achieving a satisfactory competency level (a score of 70% or higher) on the assignment. The MLSP does not have a graduate program. For this reason, the person hired for this part-time position will be a recent graduate of the program.

5.4 Refining the Admissions Skills Test: A number of the students entering the MLSP have been transfer students with very poor English skills. Due to the intense nature of the profession, students who are admitted into the MLSP with very poor English skills do not have the time while taking MLSP courses to develop their English skills sufficiently to be successful in the program. In response to this, the MLSP faculty have developed an admissions skills test to assess an applicants’ writing abilities, reading comprehension, math skills, and other required laboratory skills. The data obtained since beginning the skills test show a strong correlation between students who do poorly on the writing section of the skills test and failure to complete the program. (Reading comprehension is a new addition to the skills test, so that data has not been evaluated.) In the next two years, the MLSP would like to work with the WEC Team to develop and evaluate the writing and reading comprehension sections of the skills test to determine that the skills test is successfully evaluating the abilities we need, so that we may direct these applicants to the resources for the development of these skills so they could be successful in the program in the future.

Section #6: PROCESS USED TO CREATE THIS WRITING PLAN: How, and to what degree, were stakeholders in this unit (faculty members, instructors, affiliates, teaching assistants, undergraduates, others) engaged in providing, revising, and approving the content of this Writing Plan?

Compared to other colleges and departments that have become involved in the WEC Program, the Medical Laboratory Sciences Program is a relatively small program, having only about 100 to 150 students and
eleven faculty and teaching specialists. As part of our accreditation process, the program must also get regular input from our affiliates. These characteristics of our program have made it relatively easy to engage stakeholders and get feedback as we have moved forward with this process.

At the beginning of the process faculty, affiliates, and students in the program were surveyed about writing abilities needed in the profession, and participation was excellent. During this past year, writing in the curriculum and the development of this Writing Plan have continued to be discussed during many of our weekly faculty meetings. Faculty, an MLSP affiliate, and WEC staff have participated in the evaluation of student writing to determine how well our students are currently developing the MLSP writing abilities described in the first Writing Plan. This Writing Plan has been developed in consultation with the WEC staff, as well as with MLSP faculty. At the most recent faculty meeting, faculty determined what should be included in the final Writing Plan and agreed to move forward.

Section #7: Briefly, please describe the ways that the ideas contained in this Undergraduate Writing Plan address the University's Student Learning Outcomes (http://www.slo.umn).

The faculty of MLSP have observed that writing helps students to clarify their thoughts, and so develop a greater understanding of the course content. This leads to the ability to apply what they have learned to real world situations. The development of these skills addresses the following University Student Learning Outcomes:

- Can identify, define, and solve problems
- Can locate and critically evaluate information
- Have mastered a body of knowledge and a mode of inquiry

Many of the Medical Laboratory Sciences students come into our program lacking the communication skills necessary to successfully practice as a medical laboratory scientist. The Writing Plan presented here will help identify those students who need to improve their communication skills before entering the program so their chances of success are greatly improved. The Writing Plan also addresses the need for all MLSP students to have the ability to write in an appropriate manner for the profession. This addresses the following University Student Learning Outcomes:

- Can communicate effectively
- Have acquired skills for effective citizenship and life-long learning

The addition of writing throughout the curriculum will help the MLSP students gain an appreciation for the role writing and good communication plays in the sharing of ideas both within the field of medical laboratory science and across other healthcare disciplines. This addresses the following University Student Learning Outcome: Understand the role of creativity, innovation, discovery, and expression across disciplines
V. WEC Writing Plan Requests

Unit Name: Medical Laboratory Sciences

Financial Requests (requests cannot include faculty salary support) drop-down choices will appear when cell next to "semester" is selected

Total Financial Request: $16,050.00

<table>
<thead>
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<th>Cost</th>
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<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Multilingual specialists @ $27/hour for 15 hours</td>
<td>$1,215.00</td>
<td>3 multilingual specialists @ $27/hour for 15 hours</td>
<td>$1,215.00</td>
<td>Research assistant/</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>2 MLS raters @ $27/hour for 15 hours</td>
<td>$810.00</td>
<td>2 MLS raters @ $27/hour for 15 hours</td>
<td>$810.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research assistant</td>
<td></td>
<td>Research assistant</td>
<td>$3,000.00</td>
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</tr>
</tbody>
</table>

Semester 1 Total: $2,025.00

Semester 2 Total: $5,025.00

Semester 3 Total: $3,000.00

Rationale for costs and their schedule of distribution

Faculty are requesting an additional year to continue to evaluate student writing errors (both native English-speaking and multilingual writers), and also to include adjunct faculty or other MLS professionals as raters. The program is also requesting funds for a research assistant to work with faculty to map writing assignments and outcomes in the MLSP curriculum. This person will spend one semester working with faculty to map writing in the junior year, and then one semester for each of the three semesters of the senior year. The MLSP does not have a graduate program, so this individual will likely be a recent graduate of the program.

Service Requests drop-down choices will appear when a cell in the "service" column is selected

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<tr>
<td>Consultation</td>
<td>1</td>
<td>Consultation</td>
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</tr>
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</table>

Description and rationale for services

We are requesting a least three, and possibly four workshops over the next two years. Faculty are requesting an additional workshop on creating and Using Rubrics, Designing Effective Writing Assignments, and Working with Multilingual Writers. We would like the rubric workshop to be held early in Fall, 2014 in order to use the rubrics as soon as possible in the new MLSP curriculum. The fourth workshop that faculty have expressed some interest in is how to incorporate 5 minute writing workshops into the classroom time. Consultation services are in regard to the evaluation of the MLSP admission skills test. Some faculty have also expressed some interest in having classroom evaluations done by the WEC Team.
<table>
<thead>
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<th>Item</th>
<th>Cost</th>
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<th>Cost</th>
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</thead>
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<td>Research assistant</td>
<td>$3,000.00</td>
<td>Research assistant</td>
<td>$3,000.00</td>
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</table>

| Semester 4 Total: | $3,000.00 | Semester 5 Total: | $3,000.00 | Semester 6 Total: | $0.00 |

<table>
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<th>Service</th>
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<tbody>
<tr>
<td>Workshop</td>
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<tr>
<td>Consultation</td>
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<td></td>
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</table>
Appendix A: Ratings Report

Clinical Laboratory Sciences
Rating upper-division writing of graduating majors
July 22 and 25, 2013

Method: A team of three independent raters (two from inside the discipline, and one a writing specialist) scored capstone-level writing collected from this unit against criteria provided by unit faculty (this list is drawn from the unit’s Writing Plan). Raters used (1) a two-point criterion-referenced scale, assessing student work as “insufficient” or “sufficient” for each criterion and (2) a four point criterion-referenced scale, assessing student work as “insufficient,” “approaching sufficiency,” “sufficient,” or “more than sufficient” for each criterion. Prior to rating student writing, raters were provided a “training” session by a faculty member drawn from inside the unit. During this session, criteria were discussed and anchor papers were rated. After the rating session, raters were debriefed on the student work and rating process.

Results: A score of zero (0) indicates complete (three-rater) agreement on “Insufficient,” and 1 indicates complete agreement on “Sufficient.” Each criterion-specific rating score below represents an average of all raters’ scores for all writing samples.

<table>
<thead>
<tr>
<th>2-point scale (insufficient, sufficient)</th>
<th>2013^1</th>
<th>2013 CLS Raters only</th>
<th>2013 Writing Specialist only</th>
</tr>
</thead>
<tbody>
<tr>
<td># First Week of Clinicals</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Criteria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Explains test principles to another laboratory professional</td>
<td>.94</td>
<td>.91</td>
<td>1.0</td>
</tr>
<tr>
<td>2 Avoids distracting or confusing grammatical errors</td>
<td>.52</td>
<td>.43</td>
<td>.68</td>
</tr>
<tr>
<td>3 Conforms to standard English usage (spelling and mechanics)</td>
<td>.48</td>
<td>.30</td>
<td>.86</td>
</tr>
<tr>
<td>4 Stays within an organization that enables readers to follow logic</td>
<td>.73</td>
<td>.68</td>
<td>.82</td>
</tr>
<tr>
<td>5 Describes concisely in chronological order what an individual needs to do to perform their role in a procedure</td>
<td>.88</td>
<td>.89</td>
<td>.86</td>
</tr>
<tr>
<td>6 Describes materials related to testing (specimen characteristics, cell structure, electrophoretic patterns, etc.) clearly, using accurate terminology</td>
<td>.94</td>
<td>.91</td>
<td>1.0</td>
</tr>
<tr>
<td>7 Summarizes information to describe laboratory experiences accurately</td>
<td>.76</td>
<td>.64</td>
<td>1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2-point scale (insufficient, sufficient)</th>
<th>2013^2</th>
<th>2013 CLS Raters only</th>
<th>2013 Writing Specialist only</th>
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<tbody>
<tr>
<td># Test — Short Essay</td>
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<tr>
<td>Criteria</td>
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<td></td>
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<tr>
<td>1 Explains test principles to another laboratory professional</td>
<td>.24</td>
<td>.28</td>
<td>.16</td>
</tr>
<tr>
<td>2 Avoids distracting or confusing grammatical errors</td>
<td>.47</td>
<td>.40</td>
<td>.60</td>
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</table>

^1 Samples collected from CLSP 4601W, Summer 2012 and Fall 2012, N = 22
^2 Samples collected from CLSP 4304, Spring 2013, N = 25
<table>
<thead>
<tr>
<th>#</th>
<th>Conforms to standard English usage (spelling and mechanics)</th>
<th>.43</th>
<th>.40</th>
<th>.48</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Stays within an organization that enables readers to follow logic</td>
<td>.66</td>
<td>.66</td>
<td>.67</td>
</tr>
<tr>
<td>5</td>
<td>Describes concisely in chronological order what an individual needs to do to perform their role in a procedure</td>
<td>NA³</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>6</td>
<td>Describes materials related to testing (specimen characteristics, cell structure, electrophoretic patterns, etc.) clearly, using accurate terminology</td>
<td>.31</td>
<td>.30</td>
<td>.32</td>
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<tr>
<td>7</td>
<td>Summarizes information to describe laboratory experiences accurately</td>
<td>NA</td>
<td>NA</td>
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</table>

### 2-point scale (insufficient, sufficient)

<table>
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<tr>
<th>#</th>
<th>Criteria</th>
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<tbody>
<tr>
<td>1</td>
<td>Explains test principles to another laboratory professional</td>
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<tr>
<td>2</td>
<td>Avoids distracting or confusing grammatical errors</td>
</tr>
<tr>
<td>3</td>
<td>Conforms to standard English usage (spelling and mechanics)</td>
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<tr>
<td>4</td>
<td>Stays within an organization that enables readers to follow logic</td>
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<tr>
<td>5</td>
<td>Describes concisely in chronological order what an individual needs to do to perform their role in a procedure</td>
</tr>
<tr>
<td>6</td>
<td>Describes materials related to testing (specimen characteristics, cell structure, electrophoretic patterns, etc.) clearly, using accurate terminology</td>
</tr>
<tr>
<td>7</td>
<td>Summarizes information to describe laboratory experiences accurately</td>
</tr>
</tbody>
</table>

#### Results:

Where 0 is complete (three-rater) agreement on “Insufficient” and 3 is complete agreement on “More than Sufficient." Each rating represents an average of all raters’ scores for all writing samples for each criterion.

### 4-point scale (insufficient, approaching sufficiency, sufficient, more than sufficient)

<table>
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<tbody>
<tr>
<td>1</td>
<td>Explains test principles to another laboratory professional</td>
</tr>
<tr>
<td>2</td>
<td>Avoids distracting or confusing grammatical errors</td>
</tr>
</tbody>
</table>

³ NA = The criterion did not apply to the sample set. Or in certain situations the Writing Specialist did not have the industry knowledge to satisfactorily rate the samples on this criterion.

⁴ Samples collected from CLSP 4601W, Summer 2012 and Fall 2012, N = 17

⁵ Samples collected from CLSP 4601W, Summer 2012 and Fall 2012, N = 21
<table>
<thead>
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<th>2013 Writing Specialist only</th>
</tr>
</thead>
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<td>1</td>
<td>Explains test principles to another laboratory professional</td>
<td>1.2</td>
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</tr>
<tr>
<td>2</td>
<td>Avoids distracting or confusing grammatical errors</td>
<td>1.1</td>
<td>1.3</td>
</tr>
<tr>
<td>3</td>
<td>Conforms to standard English usage (spelling and mechanics)</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>4</td>
<td>Stays within an organization that enables readers to follow logic</td>
<td>1.5</td>
<td>1.8</td>
</tr>
<tr>
<td>5</td>
<td>Describes concisely in chronological order what an individual needs to do to perform their role in a procedure</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>6</td>
<td>Describes materials related to testing (specimen characteristics, cell structure, electrophoretic patterns, etc.) clearly, using accurate terminology</td>
<td>1.1</td>
<td>NA</td>
</tr>
<tr>
<td>7</td>
<td>Summarizes information to describe laboratory experiences accurately</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

4-point scale (insufficient, approaching sufficiency, sufficient, more than sufficient)

<table>
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<tr>
<th>#</th>
<th>Criteria</th>
<th>2013 Raters only</th>
<th>2013 Writing Specialist only</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explains test principles to another laboratory professional</td>
<td>1.91</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>Avoids distracting or confusing grammatical errors</td>
<td>1.5</td>
<td>1.67</td>
</tr>
<tr>
<td>3</td>
<td>Conforms to standard English usage (spelling and mechanics)</td>
<td>1.44</td>
<td>1.5</td>
</tr>
<tr>
<td>4</td>
<td>Stays within an organization that enables readers to follow logic</td>
<td>1.17</td>
<td>NA</td>
</tr>
</tbody>
</table>

6 Samples collected from CLSP 4304, Spring 2013, N = 26
7 Samples collected from CLSP 4601W, Summer 2012 and Fall 2012, N = 17
Responses: Clinical Laboratory Sciences

From RATING SESSION DEBRIEFING

At the conclusion of the rating session, raters completed an online survey. This survey asked for impressions of students’ writing strengths, weaknesses, and reactions to criteria. Responses were discussed further during a short debrief session. The information below was drawn directly from the surveys and from transcriptions of the subsequent discussion.

1. Now that you’ve worked through a significant number of individual writing samples from a specific college/department, what patterns of strength and/or weakness did you notice?

Strengths:

- Of the papers, not the tests, most were sufficient in grammar, mechanics and spelling
- Decent understanding of what needs to be documented
- Organization

Weaknesses:

- In the tests the students were lower on grammar, spelling, and mechanics skills
- Lack of understanding of proper beginning and ending for papers
- The grammar issues present include: sentences structure, transitions (words and sentences – could be a multilingual issue)
- Properly use abbreviations
- Formatting of a paper using word processing systems

2. Were any of the items on the rating guide difficult to interpret/use? If so, which were they? What sorts of questions did these items provoke?

Criterion 2: Avoids distracting or confusing grammatical errors

- Not sure if full sentences were required/requested for the test questions
- In general this merged with Criterion 3

Criterion 3: Conforms to standard English usage (spelling and mechanics)

- “Usage” to me means word choice or diction, but we agreed in the training that in this session it would mean spelling and mechanics, as per the criterion wording.
- Unsure where this ends and grammar begins – merged with Criterion 2
- Struggled to determine if formatting issues fell under this
Criterion 5: Describes concisely in chronological order what an individual needs to do to perform their role in a procedure
  • This is sometimes difficult to apply in situations where the “role” of a laboratorian isn’t addressed so much as the procedure they follow

Criterion 7: Summarizes information to describe laboratory experiences accurately
  • Not applicable to all types of writing in CLS (such as the SOP samples)

3. Did you find yourself wishing that you could address writing issues that were not contained in the rating guide? If so, what were they?
  • Word choice as distinct from grammar
  • Source documentation
  • Different criteria sets for these different samples?
  • Many of the issues are fundamental writing issues, being able to rate the work without those things may help
  • Formatting
Appendix B – Pilot Study Final Results Report Summary

Executive Summary

The Clinical Laboratory Sciences (CLS) Program implemented a pilot study of CLS student writing, with specific focus on global and local errors. A team of three multilingual specialists analyzed 110 samples of undergraduate CLS majors’ student writing. Twenty-seven Native English-speaking (NES) students composed fifty-four of the samples; thirty multilingual (ML) writers representing twelve languages\(^1\) composed fifty-six of the samples.

Two genres were included in the study: a case study abstract, and a reflective essay focused on the students’ first week of clinical rotation experience. Multilingual specialists were instructed to read, analyze, and code each individual sample for global and local (sentence-level) errors.

Findings indicate that:

- NES and ML writers made similar types of errors, but ML writers’ errors occurred at a higher frequency.
- The vast majority of local errors did not impede reader comprehension; errors interfered with reader comprehension in only 14/110 samples (13% of all samples).

Research Questions

Original Research Questions:

1. What error patterns are evidenced in CLS multilingual student writing?
2. Do the error patterns identified in these samples differ significantly from other students’ writing in CLS courses?
3. What strategies can CLS faculty/instructors employ in order to best support multilingual student writers in the CLS program?

Revised Research Questions:

1. Taking into consideration the characteristics of Writing in Clinical Laboratory Sciences, as well as the desired writing abilities for CLS undergraduate majors, what global and local error patterns are evidenced in CLS student writing?
2. Do the error patterns identified in multilingual student samples differ significantly from those errors identified in native English-speaking writers’ samples?
3. Given the results derived from answering the first two research questions, what strategies can CLS faculty/instructors employ in order to best support multilingual student writers in the CLS program?

See Appendix C for the characteristics of writing in Clinical Laboratory Sciences’ 1\(^{st}\)-edition Writing Plan, and for the program’s list of desired writing abilities.

\(^1\) Languages represented in the CLS Pilot Study: Akan, Amharic, Arabic, Cambodian, Cantonese, Chinese, Kiisi/Swahili, Korean, Oromo, Russian, Somali, and Vietnamese.
Methodology

Data collection: Collected data included case study abstracts and brief reflection essays focused on students’ first week of clinical work.

Artifact selection criteria:

a. Representational mix of writing from native-English-speaking writers and multilingual writers, reflecting the ratios as they exist in the CLS undergraduate major demographic
b. Artifacts could be analyzed by disciplinary outsiders (Standard Operating Procedures were excluded from the sample set, for instance, given the technical characteristics of the genre)
c. A substantial subset of the Case Study Abstracts were paired, such that the specialists could analyze error patterns for the same writer both at the entry level and at the exit level (N=19 pairs from NES; 16 pairs from ML). The sample set also included individual Case Study Abstracts (NES=7 samples; ML=13 samples).
d. Sample size limited to total number of documents that multilingual specialists could analyze in four hours.

Artifact analysis protocol:

a. The CLS Program Chair assigned each student writer a numeric code to de-identify samples; multilingual specialists were not informed as to which samples were authored by NES students or ML students.
b. Each multilingual specialist analyzed approximately one-third of the total sample set. Samples were not duplicated—that is, each multilingual specialist analyzed a discrete set of documents.
c. Multilingual specialists were instructed to analyze each sample, and to count the number of global and local (sentence-level) errors in each sample. The Pilot Study Coordinator provided each specialist with an electronic spreadsheet for record-keeping purposes. Post-artifact analysis, the Pilot Study Coordinator synthesized findings and prepared a final results workbook.
   1. Global (non-sentence-level) error codes derived from Case Study Abstract instructions, and from the CLS Writing Plan’s list of discipline-specific writing characteristics and abilities.
   3. Three local (sentence-level) error codes were added to the list during artifact analysis to address punctuation errors (other than apostrophe errors), missing words, and capitalization errors.

Time Budget: 10 hours for each Multilingual Specialist

1. 1.5-hour kickoff meeting (Monday, November 4, 2013) to launch project, to orient multilingual specialists, CLS Chair and CLS WEC Liaison, and WEC staff
2. 4 hours (12 hours total) artifact analysis and error pattern coding
3. 2.5 hour post-analysis meeting to synthesize multilingual specialists’ findings
4. 2-hours presentation: report/present findings and recommendations to faculty
Findings
1. Taking into consideration the characteristics of Writing in Clinical Laboratory Sciences, as well as the desired writing abilities for CLS undergraduate majors, what global and local error patterns are evidenced in CLS student writing?

   a. **Global errors, Case Study Abstract**: The multilingual specialists struggled with the global errors categories. For example, the specialists were uncertain as to how to distinguish between “incomplete” and “lacks descriptive detail” for the case study introductions. Multilingual specialists also had questions about how students were using the source material, and how derivative the Case Study Abstracts could be. This uncertainty may correlate to the relatively low number of errors counted at the global level (N=53) in the Case Study Abstract samples analyzed (N=90).

      i. Specialists identified 22 global-level errors in the 45 NES Case Study Abstracts, with “incomplete abstract” errors comprising 50% of those errors.

      ii. Specialists identified 31 global-level errors in the 45 ML Case Study Abstracts, with both “incomplete abstract” and “logic” errors accounting for 46% of the errors (seven errors in each of these categories).

   b. **Local errors, Case Study Abstract**: Abstracts written by native English-speaking students contained an average (mean) of 2.6 sentence-level errors, with the incorrect usage of articles (a, an, and the) as the most frequent error type (N=26 errors across 45 samples). Incorrect article usage was also the most frequent sentence-level errors for multilingual writers, with a total of 95 errors in 45 Case Study Abstract (mean score of 8.9 errors per sample).

   c. **Global errors, First Week of Clinical Experience**: In this genre, students appeared to struggle with descriptive writing, and with communicating information in a logical manner. However, students made fewer global errors in this genre, and in fewer error categories, than they did in the Case Study Abstracts. Multilingual specialists noted that paragraphing sometimes lacked cohesion, especially in terms of the use of topic sentences and transitions. The specialists wondered whether the “right kind” of detail was used, what level of detail was expected, and what role personal reflection played in the assignment. Samples varied in organizational pattern—some essays were organized chronologically, while others were organized by topic.

      i. Specialists identified two errors in the nine NES-authored essays: one essay’s descriptive writing was unclear, incomplete, or included unnecessary detail; another essay’s text lacked descriptive detail.

      ii. Specialists identified four errors in the seven multilingual-student-authored essays: two essays lacked descriptive detail; two other essays failed to communicate information in a logical manner.
d. **Local errors, First Week of Clinical Experience:** Both student populations tended to make more sentence-level errors in the reflective essay assignment, with native English-speaking writers making an average of 3.8 errors per essay and multilingual writers making an average of 12.7 errors per essay. However, the populations made different types of errors. Comma errors were the most frequent type for NES writers, while multilingual writers’ samples demonstrated a higher frequency of verb tense errors.

**e. Additional observations:**
- All multilingual specialists had trouble with the global errors categorization, given the technical nature of the case study abstracts. For example, the specialists struggled to distinguish between “incomplete abstract” and “lacks descriptive detail” for the case study introductions, and were unsure about the standards regarding what a complete case study abstract would look like.

- The specialists also had questions about how students were using source material for the case study abstracts, and how derivative the writing could be without being inappropriate. Were students using the sources appropriately? That is, has plagiarism been an issue in CLS student writing, especially in the case study abstracts?

2. **Do the error patterns identified in multilingual student samples differ significantly from those errors identified in native English-speaking writers’ samples?**

   a. **Global errors, all genres combined:** The most frequent global errors in both student populations included errors in logic, incomplete abstracts, missing author information, and descriptive detail. The differences were not significant. While multilingual students made more errors in logic (8 errors as compared to 3 errors for the NES population), native-English speaking students' primary error at this level was an incomplete abstract.

   b. **Local errors, all genres combined:** The most frequent sentence-level errors for both populations included article errors (usage of “a,” “an,” and “the”), verb tense errors, and using the wrong word. Errors were more frequent in the multilingual student population. Native English-speaking students’ verb tense errors were a matter of consistency rather than verb tense type (for instance, shifting from past to present tense, or using one tense inconsistently).

3. **Given the results derived from answering the first two research questions, what strategies can CLS faculty/instructors employ in order to best support multilingual student writers in the CLS program?**

   **A. Pedagogical suggestions:**
   - Provide students with lots of opportunity to practice writing, and help them develop strong self-review skills for this—such as checklists, a review process, attention to error from instructor, and a chance for review/practice.
• Develop a holistic approach to support, such that assignment instructions, grading rubrics, and other instructional materials are revised to tie the materials to the desired writing abilities and characteristics of writing in CLS.

• Consider possible revisions to the grading rubric for the First Week of Clinicals assignment. The rubric’s emphasis on language/mechanics may inadvertently reward poor reflection because the rubric minimizes reflective content.

• Prioritize the outcomes desired for each type of assignment.

• Weight grading criteria to reflect the importance/relevance of each factor students are being graded on—for instance, weigh clarity and editing differently, due to the significance of the real-life writing students are (and will be) doing. We also recommend explaining the grading criteria weights clearly to students, such that they begin to (and eventually do) internalize the significance of accuracy/correctness (among other things).

• Increase transparency of expectations: include explicit instructions and models/samples of effective/ideal writing (a well-written case study abstract, a lab report that fulfills or exceeds faculty expectations, a substantive reflective essay, or a well-written Standard Operating Procedure).

B. How can instructors address sentence-level and structural issues in student writing?

• Build awareness (among faculty) that error is a natural feature of multilingual student writing—especially prepositions, article usage, and idiom.

• Distinguish between “some error” and errors that (a) interfere with meaning or reader comprehension and (b) are so numerous that the writing/writer loses credibility.
C. How do we best create assignments, instructional materials, and grading rubrics?

- Teaching with Writing (TWW) Tips that can help:
  - Devising Clear Writing Assignments
  - Reflective Writing for Metacognition and Synthesis
  - Preventing Plagiarism
  - Quick, Effective Writing Instruction
  - Clarify Instructor Expectations with Annotated Student Writing Samples
  - Teaching Academic Citation Practices in U.S. higher educational contexts
  - Prioritizing Responses to Student Writing
  - Responding for Revision
  - Arranging Virtual Peer Response
  - Backward Design for Grading Rubrics

- Include relevant language from the Characteristics of Writing in Clinical Laboratory Sciences and the list of Desired Writing Abilities on assignment instructions, in your feedback to students, and on grading rubrics. The criteria developed/identified during the January 2014 rubric workshop will also be helpful in making expectations transparent to students.

D. Additional strategies/recommendations:

- Build a collaboration with Student Writing Support (SWS), such that multilingual students can work one-on-one with ESL specialists. Student Writing Support has three ESL specialists on staff, but all SWS consultants are trained to work effectively with multilingual writers. One-on-one consultations could focus on patterns of error, and students can learn skills to self-edit more effectively.

- Hold students accountable for fulfilling your expectations—for instance, if a lab report contains numerous errors (and which impede comprehension, obfuscate meaning, or have negative consequences for a patient), return the paper/lab report to the student without any comments or grades. Inform the student that you won’t respond to/grade the lab report until the student has re-read the text and made the necessary corrections/revision.

**Recommendations for Future Studies**

1. Budget more time for artifact analysis—we ended up adding two hours (six hours total) for each ML specialist
2. Additional data to be added during/after May 30 session(s).
Appendix C: CLS Characteristics and Abilities from First Writing Plan

**Discipline-specific Writing Characteristics in Clinical Laboratory Sciences:**

- **Explanatory:** Scientific and administrative information is explained logically and at levels of detail that are appropriate for the particular audience being addressed (health care providers, management, peers, and patients)
- **Descriptive:** Can describe procedures, microscopic objects, and results in an accurate and unambiguous manner; medical and scientific terminology is appropriately used
- **Distilled:** Conveys information in a thorough, yet precise and concise manner; without unnecessary information
- **Persuasive:** Can explain reasoning used to make a decision or develop a plan of action
- **Organized in correct format:** Can write in established formats, including those prescribed by regulatory and accrediting organizations, as well as reports for administration and scientific reporting
- **Multi-modal:** Can present information accurately in hand-written formats, as well as electronic formats, including test result reports, proposals, posters, and PowerPoint presentations
- **Informative and Constructive:** Can write in a manner that is clear, helpful and educational to the reader e.g., employee performance appraisals
- **Timely:** Can provide written communications in a timely manner
- **Correct in grammar and spelling**

**Desired Writing Abilities:**

- **Explain the meaning of test results:** Graduates should be capable of clearly and accurately providing test results and explaining the meaning of those test results to both the healthcare provider and to the patient.
- **Describe laboratory test specimens and procedures:** Graduates must be able to describe the characteristics of a specimen in a way that clearly conveys to the reader what is being observed.
- **Communicate information in a logical manner:** Graduates should be able to write in an organized and logical manner that allows the reader to follow the rationale for the process, decision, or action.
- **Record test results accurately, neatly, and in an unambiguous fashion:** Graduates must recognize the critical nature of accurate recording of results, including accurately spelling the patient’s name, identification numbers, and laboratory testing information.
- **Report information, including error correction, in an appropriate and legal manner:** Graduates should be able to identify the correct methods for maintaining records of laboratory processes.
- **Document and evaluate quality control for accuracy and precision:** Graduates should be able to interpret quality control charts and describe corrective action when needed.
- **Follow accreditation guidelines for writing procedures or reports:** Graduates should be able to follow reporting guidelines for organizations, e.g. the Food and Drug Administration guidelines for dispensing of blood products.
• **Communicate utilizing multiple modes of communication:** Grads should be able to communicate clearly using multiple formats, including hand-written, electronic formats, graphs, tables, and oral communication.

• **Analyze the clinical laboratory science literature and incorporate it into practice:** Grads should recognize and use the scientific literature and incorporate it with evidence-based practice.

• **Reflect on the writer’s abilities and weaknesses to develop an effective resume and cover letter:** Grads should be able to assess their strengths and weaknesses, and write in a way that honestly describes their abilities.
July 28, 2014

To: Donna Spannaus-Martin, Medical Laboratory Sciences
From: Robert McMaster, Office of Undergraduate Education
Subject: Decision regarding WEC funding proposal

The Department of Medical Laboratory Sciences recently requested the following funding to support its Writing Enriched Curriculum:

<table>
<thead>
<tr>
<th>Period</th>
<th>Details</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2014</td>
<td>3 multi-lingual specialists ($27/hr, 15 hrs each)</td>
<td>$1,215.00</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>2 MLS raters ($27/hr, 15 hrs each)</td>
<td>$810.00</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>3 multi-lingual specialists ($27/hr, 15 hrs each)</td>
<td>$1,215.00</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>2 MLS raters ($27/hr, 15 hrs each)</td>
<td>$810.00</td>
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<td>Spring 2015</td>
<td>Research assistant</td>
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<tr>
<td>Summer 2015</td>
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<tr>
<td>Fall 2015</td>
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<tr>
<td>Summer 2016</td>
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<tr>
<td><strong>TOTAL REQUEST</strong></td>
<td></td>
<td><strong>$ 16,050.00</strong></td>
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</tbody>
</table>

All items above have been approved by the Office of Undergraduate Education, for a total of $16,050. Please provide Pat Ferrian (ferri004@umn.edu) with your department’s EFS information so the funds may be transferred.

CC: Suzanne Bardouche, Molly Bendzick, Will Durfee, Pat Ferrian, Pamela Flash, Leslie Schiff