EWU Programmatic SLO Assessment
AY 2014-15 and "Closing the Loop" for AY 2013-14

Degree/Certificate: BA

Major/Option: Geography
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Part I – Program SLO Assessment Report for 2014-15

Part I – for the 2014-15 academic year: Because Deans have been asked to create College-Level Synthesis Reports annually, the template has been slightly modified for a) clarity for Chairs and Directors, and b) a closer fit with what the Deans and Associate Deans are being asked to report.

1. **Student Learning Outcome**: The student performance or learning objective as published either in the catalog or elsewhere in your department literature.

SLO#4: "apply basic research methodologies and field techniques to geographic research"

2. **Overall evaluation of progress on outcome:** Indicate whether or not the SLO has been met, and if met, to what level.

_____*SLO is met after changes resulting from ongoing assessments, referencing assessment results from the previous year to highlight revisions;*
_____*SLO is met, but with changes forthcoming;*
___X__*SLO is met without change required*

3. **Strategies and methods:** Description of assessment method and choices, why they were used and how they were implemented.

The assessment strategy is based on longitudinal data involving student performance from three different sources in order to better understand if, when, and how students gain mastery over SLO#4.

General Summary: Assessment data was collected for nineteen graduating seniors who completed their capstone course in the 2014-2015 academic year. Students were assessed in three different contexts. First, we measured 'end-of-program' performance based on their final research presentation in GEOG490, the capstone. Second, we correlated their end-of-program performance, on a student-by-student level, to mastery of individual research techniques and methodologies in their 'beginning-of-program' performance in GEOG201, Field Methods. Third, we assessed math performance in EWU math classes and standardized math test scores in order to relate math preparedness to ability to master and later apply geographic field methods.

Source #1 – Evaluation Criteria: Performance in GEOG490, Capstone.
Measurement: Ability to meet rubric for synthesis of specific research skills
Justification: Assess student ability to synthesize prior learning at end of program

Geography majors typically take GEOG490, Capstone, during their senior year though on occasion, should the student not graduate as planned, it ends up occurring during their junior year. The measurement tool evaluated their ability to meet geographic research methodology and technique standards based on assessment of three criteria in their final projects: appropriate selection of field techniques and methodologies; ability to implement data collection using those techniques and methods; ability to synthesize results into broader analytical discussion.

Student performance was measured as follows:
Does not meet – met one or no criteria
Meets – met two of three criteria
Exceeds – met all three criteria

Source #2 -- Evaluation Criteria: Competencies Developed in GEOG201, Research Methods
Measurement: Ability to meet rubric for mastery of individual research tools
Justification: Assess student ability to learn and apply new tools correctly

Geography majors typically enroll in GEOG201, Field Methods, in their first quarter as a major. The course introduces key techniques and methods. This course involves significant amounts of practice in the field. Students are measured on their ability to properly apply a range of methods and interpret results. Due to the introductory nature of the course, field labs are generally pre-arranged according to different methods, so while students explore methodology selection conceptually they have less hands-on practice compared to physical implementation of specific tools and techniques.

Student performance was measured as follows:
Does not meet – demonstrated mastery of less than 65% of tools and methods introduced
Meets – demonstrated mastery of 65% - 90% of tools and methods introduced
Exceeds – demonstrated mastery of over 90% of tools and methods introduced

Source #3 -- Evaluation Criteria: Mathematical literacy
Measurement: Performance in EWU Math Classes OR Standardized Math Scores
Justification: Assess relationship between math preparation and SLO#4

Within the field of geography, research has linked spatial and mathematical reasoning abilities. Evidence suggests students with the strongest preparation in mathematics consistently outperform students with weaker math skills on spatial reasoning tests. We were curious if the pattern holds for EWU geography students. Math data can give us the deepest yet most unpredictable longitudinal

perspective – for some students, we can trace math progression going back to their initial SAT scores as juniors in high schools, while for others we only had access to recent GRE scores, and on a few occasions, no data at all. Whenever possible, we prioritized performance in EWU math classes. In all cases, math performance was measured based on EWU class grades or standardized scores.

4. **Observations gathered from data:** Include findings and analyses based on the strategies and methods identified in item #3.

    a. Findings:

	Meets/Meets*	Meets/Exceeds*	Exceeds/Meets*	Exceeds/Exceeds*
Repeat EWU math	2	2	1	2
Low SAT		1		2
Success EWU math			1	
High SAT		1		2
No Data		1	1	3

*Meets or exceeds SLO#4 GEOG201 // Meets or exceeds SLO#4 GEOG490
N = 19

    b. Analysis of findings:

At the beginning of program, all students were able to meet SLO#4 based on their performance in GEOG201 Research Methods. Seven students met the standard, meaning they had demonstrated mastery of at least 65% but less than 90% of geographic research tools and methods. Twelve students exceeded the standard, meaning they demonstrated mastery of 90% or more of geographic research tools and methods.

By end of program, all geography students still met SLO#4, meaning all nineteen students could perform at least two of three critical methodological activities to established standards: either select appropriate geographic tools and methods, apply them properly, or synthesize the results into quality analysis. Thirteen out of nineteen of the students exceeded the goal and were able to perform to standard in all three categories.

Progress through program and relationship to math performance. Nine students maintained mastery of SLO#4 by exceeding evaluation standards at both beginning and end of program. Of the seven students who initially were only able to meet, not exceed, SLO#4 standards, by the end of program five of those seven had improved to the point they exceeded SLO#4 standard. That left two students who never progressed beyond meeting (but never exceeding) SLO#4, and three

students who went into a decline after initially exceeding the standard, but by the end of program only meeting SLO#4.

Three of those five students who did not exceed SLO#4 at end of program also struggled the most with math. And as we did not have any math data for one of those five students, it is possible that the percent of students who struggle with math ***and*** underperform when compared to their peers on geographic research tools and methods is even higher. Significantly, those three students for whom we had math data had by far the highest repeat rates for EWU math classes, requiring (per student) six, eight, and nine attempts to finally pass their EWU core math competency. Similarly, only one of the five students who initially met but did not exceed SLO#4 at beginning of program demonstrated proficiency with math (in the form of a high math SAT score). However, it would be premature to jump to the conclusion that low math performance is causal, because data revealed that low math performance was also a pattern with students who exceeded SLO#4 both at beginning and end of program. Low math performance was evident across all students; only four of the nineteen either made satisfactory progress in EWU math classes or registered high (>500) SAT scores. Seven of nineteen were required to repeat EWU math classes before receiving a passing grade. While poor math performance appears to be a common factor across all underperforming geography students, contrary to expectation it also was a common factor for students who exceeded standards for SLO#4.

5. **What program changes will be made based on the assessment results?**

    a) Describe plans to improve student learning based on assessment findings (e.g., course content, course sequencing, curriculum revision, learning environment or student advising).

The assessment results indicated that 100% of students are meeting SLO#4. Sixty-three percent of students exceed the standard in terms of mastery of individual skills in the early stages of their program, and seventy-four percent exceed the standard by end of program. Skills learned earlier are retained and built upon. We do not anticipate any specific changes internal to our program. The only observation we make is in terms of student advising, and involves more closely monitoring how our students are progressing in meeting their math requirements.

The data revealed by math performance is disturbing. Math competency is a core competency that underlies most STEM fields, including Geography. Our department is prepared to accommodate students who are otherwise not prepared mathematically and help them achieve mastery of spatial skills, although as the assessment results indicate, the job is more difficult the more a student struggles with math. More troublesome is the effect on time-to-degree. Some of our students found they needed to calculate an additional (and unanticipated) thirty to forty credits just in order to pass math. This can add a full year and, at today's tuition rates, nearly $8,000. By more closely monitoring our student's math performance, we can catch problems earlier in their curriculum and

provide guidance as to more constructive alternatives such completing the math requirement at the community colleges.

b) Provide a broad timeline of how and when identified changes will be addressed in the upcoming year.

6. **Description of revisions to the assessment process the results suggest are needed and an evaluation of the assessment plan/process itself.**

A pre-test will be added at beginning of program. These assessment results would be more robust is we had baseline pre-test data for comparison. In the future, a geographic research tools and methods pre-test will be administered at the start of GEOG201 in order to identify students who have already developed spatial research skills before coming to the Geography program at Eastern.

NEW: PART II – CLOSING THE LOOP
FOLLOW-UP FROM THE 2013-14 PROGRAM ASSESSMENT REPORT

In response to the university's accrediting body, the Northwest Commission on Colleges and Universities, this section has been added. This should be viewed as a follow up to the previous year's findings. In other words, begin with findings from 2013-14, and then describe actions taken during 2014-15 to improve student learning along, provide a brief summary of findings, and describe possible next steps.

PLEASE NOTE: The College-Level Synthesis report includes a section asking Deans to summarize which programs/certificates have demonstrated "closing-the-loop" assessments and findings based on the previous year's assessment report.

> ***Working definition for closing the loop:*** *Using assessment results to improve student learning as well as pedagogical practices. This is an essential step in the continuous cycle of assessing student learning. It is the collaborative process through which programs use evidence of student learning to gauge the efficacy of collective educational practices, and to identify and implement strategies for improving student learning." Adapted 8.21.13 from http://www.hamline.edu/learning-outcomes/closing-loop.html.*

1. **Student Learning Outcome(s)** assessed for 2013-14

SLO#1: students will demonstrate proficiency in interpreting existing and creating new maps, in both paper and digital forms.

2. **Strategies implemented** during 2014-15 to improve student learning, based on findings of the 2013-14 assessment activities.

   New labs were designed for existing courses GEOG321, 328, 428, and 429, and the curriculum for GEOG227 and GEOG427 completely updated.

3. **Summary of results** (may include comparative data or narrative; description of changes made to curriculum, pedagogy, mode of delivery, etc.): Describe the effect of the changes towards improving student learning and/or the learning environment.

   With the addition of two new faculty members, courses were redesigned to highlight more contemporary cartographic pedagogy especially in digital format. GEOG227, which had been a traditional pen-and-ink cartography course has now been modified to include digital techniques and software training. An advanced Desktop Mapping course, GEOG427, has

been completely refurbished to better reflect contemporary theory in cartography and geovisualization, with heavier emphasis on digital and web map design. Expected cartographic standards are now distributed to each student at the start of each class, and reflected in assignment and project grades.

4. What **further changes to curriculum, pedagogy, mode of delivery,** etc. are projected based on closing-the-loop data, findings and analysis?

Due to one death and two retirements, the Geography program will be hiring three new tenure-track faculty at the beginning of 2016-2017 academic year. We will wait until our new faculty are in place before making further adjustments.

Definitions:

1. **Student Learning Outcome**: The student performance or learning objective as published either in the catalog or elsewhere in your department literature.
2. **Overall evaluation of progress on outcome:** This checklist informs the reader whether or not the SLO has been met, and if met, to what level.
3. **Strategies and methods used to gather student performance data,** including assessment instruments used, and a description of how and when the assessments were conducted. Examples of strategies/methods: embedded test questions in a course or courses, portfolios, in-class activities, standardized test scores, case studies, analysis of written projects, etc. Additional information could describe the use of rubrics, etc. as part of the assessment process.
4. **Observations gathered from data**: This section includes findings and analyses based on the above strategies and methods, and provides data to substantiate the distinction made in #2. For that reason this section has been divided into parts (a) and (b) to provide space for both the findings and the analysis of findings.
5. **Program changes based on the assessment results:** This section is where the program lists plans to improve student learning, based on assessment findings, and provides a broad timeline of how and when identified changes will be addressed in the upcoming year. Programs often find assessment is part of an ongoing process of continual improvement.
6. **Description of revisions to the assessment process the results suggest are needed.** Evaluation of the assessment plan and process itself: what worked in the assessment planning and process, what did not, and why.

Some elements of this document have been drawn or adapted from the University of Massachusetts' assessment handbook, "Program-Based Review and Assessment: Tools and Techniques for Program Improvement" (2001). Retrieved from http://www.umass.edu/oapa/oapa/publications/online_handbooks/program_based.pdf