

Student Learning Outcomes Assessment 2013-2014

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Introduction

The table below contains student learning outcomes (SLO) for the BA and BS degrees in Geology at EWU.

BA-Geology			1. Develop effective skills in oral and written communication in order to be successful in the field of geology.
			2. Understand basic principles of the history and development of earth through time.
			3. Learn and demonstrate the proper use of office, laboratory and field equipment used in the field of geology.
BS-Geology			1. Develop effective oral and written communication skills necessary for employment in the various fields of geology.
			2. Develop critical thinking skills to solve geological problems encountered in the various fields of geology.
			3. Understand and be able to use the tools and equipment available to professional geologists to solve geological problems.
			4. Have a solid understanding of geologic principles and processes that operate in the complex systems of the earth.

I have assessed SLO 3 (for the BS and BA degrees) by analyzing student performance in GEOL 490, Geology Field Camp, taught in summer, 2014.

Geology Field Camp

GEOL 490 is a required disciplinary capstone for the BS degree program and an optional capstone and geology elective for the BA degree program. Students take GEOL 490 in the summer following their senior year. It is a 4-week course taught in the Ruby and Pioneer Mountains of southwestern Montana. Students spend 6 days per week in the field making maps and solving problems related to all aspects of

geology including mineralogy, petrology, structural geology, sedimentology, and paleontology. They spend evenings and their one day off per week drafting geologic maps and cross-sections that illustrate their interpretations of surface and subsurface geology. In so doing, they use field and lab skills, tools, and equipment that professional geologists apply to real-world geological problems.

EWU's Geology Field Camp is attended by outside students as well as EWU geology majors. Virtually all BS degree programs in geology in the United States require Field Camp for graduation, but most universities do not offer their own Field Camp. Instead, their students attend Field Camps like ours that admit outside students. Last year (summer, 2014) we had 23 of our own students and therefore had limited space for outside students. One outside student came to EWU's camp from Pacific Lutheran University, a highly selective private school.

One student left Field Camp after 2 weeks due to a sprained ankle, so overall there were 22 EWU students and 1 outside student who completed Field Camp and were thus used in this assessment. Because of this year's low number of outside students, in my analysis I have included the 11 outside students who completed Field Camp last year (2013) for comparison purposes.

One of the advantages of admitting students from other universities to our field camp is that it permits us to compare the abilities of our students with the abilities of students from other geology programs. In 2014, one student attended from Pacific Lutheran, and in 2013 eleven students attended from Pacific Lutheran, Franklin and Marshall, Boise State, and Cal State San Bernardino. It should be noted that all of the outside universities listed here have academically selective admission processes. Pacific Lutheran is the 12th ranked regional university in the west by U.S. News and World Report (2013 ranking). Franklin and Marshall is ranked 46th nationally among liberal arts colleges. California State University, San Bernardino is the 54th ranked regional university in the west, and Boise State is ranked 62nd in the west, tied with EWU.

SLO Assessment

SLO assessment is based on students' overall course grades and also on students' grades on their independent final exam. The overall grade is based in part on large multi-day projects that utilize group mapping, analysis, and geologic interpretation. Therefore the overall grade, while an indicator of the success or failure of our department's ability to achieve desired student learning outcomes, is not solely based on a single student's abilities. Therefore I am also assessing each student's independent final exam result as no collaborative work was permitted on this particular one-day mapping project. Note that students used the tools and equipment available to professional geologists to solve geological problems on both individual and group projects.

For the purposes of assessing success in achieving SLO's, I compared EWU students' results in GEOL 490 with those of students from outside institutions in GEOL 490 for summer, 2014, and then compared EWU students' 2014 results to both EWU and outside students' results from 2013.

Results

Below are the averages of final exam grades (percent) and overall course grades (percent) for (a) students from EWU and (b) outside students from the universities listed above for both 2014 and 2013.

Student Group	Final Exam (%)	Overall Course Grade (%)
EWU 2013	77.9	85.3
Outside Students 2013	78.4	85.8
EWU 2014	82.0	84.8
Outside Students 2014	78.0	83.4

2014 comparison with outside students:

Both the final exam average and overall course average were higher for EWU students than for the sole outside student in 2014. The highest score in 2014 on the final exam was 97%, achieved by two EWU students (compared to a high of 100% by one student last year). The highest overall grade for the class was 89.4%, achieved by one EWU student (compared to a high score of 89.6% in 2013).

2014 comparison with 2013 students:

The 2014 final exam average of 82.0% was 4.1% higher than last year's final exam average of 77.9% for EWU students and 3.6% higher than last year's final exam average for outside students. This year's EWU overall average of 84.8% was 0.5% lower than last year's overall average of 85.3% for EWU students and 1% lower than last year's overall average of 85.8% for outside students.

Conclusions

Considering data from both 2013 and 2014, students from Eastern Washington University attending the 2014 GEOL 490 course performed as well as students from other universities (including highly selective and highly ranked Pacific Lutheran) on both the independent final exam and the overall course grade. In 2014 EWU students were 4 percentage points higher than the sole 2014 outside student and 3.6 percentage points higher than the 2013 outside students (11 in number) in the final exam average. EWU students earned an overall course average that was 1.4 percentage points higher than the sole 2014 outside student (but 1 percentage point lower than 2013 outside students). The highest final exam grade and the highest overall class grade in 2014 were both achieved by EWU students.

EWU students' grades demonstrate a high level of understanding and performance in GEOL 490: Geology Field Camp. These results indicate that the EWU Geology Department is successful in achieving desired student learning outcomes.