

# Student Learning Outcomes Assessment Summary

## Civil Engineering, BS CE College of Engineering and Mines AY 2014-15 and 2015-16

Submitted by: Silke Schiewer  
Contact Information: [sschiewer@alaska.edu](mailto:sschiewer@alaska.edu), 474-2620  
Date: May 13, 2016

### 1. Assessment information collected

As detailed in the SLOA assessment plan, student work samples (home works, exams, lab reports, etc.) are collected every two years by the instructors of the selected classes, identified as being strongly related to an outcome. These student work samples are then evaluated each by three CEE faculty members, assigned to that task by the ABET coordinator, who subsequently compiles the results.

The last review cycle used student work samples collected in the Spring of 2015 (see Table 1). These data were scored in Sept.-Oct. 2015 based on established rubrics. The ABET coordinator (Dr. Schiewer) then presented the compiled results to faculty. Summarized data are shown in Figure 1, with the 50% bar indicating “meet criteria”.

For outcome a, pass rates for the FE results are shown in Fig. 1. Though the pass rate was lower than in past years, the FE exam scores of UAF CEE students in the different subjects averaged 99% of the national average.

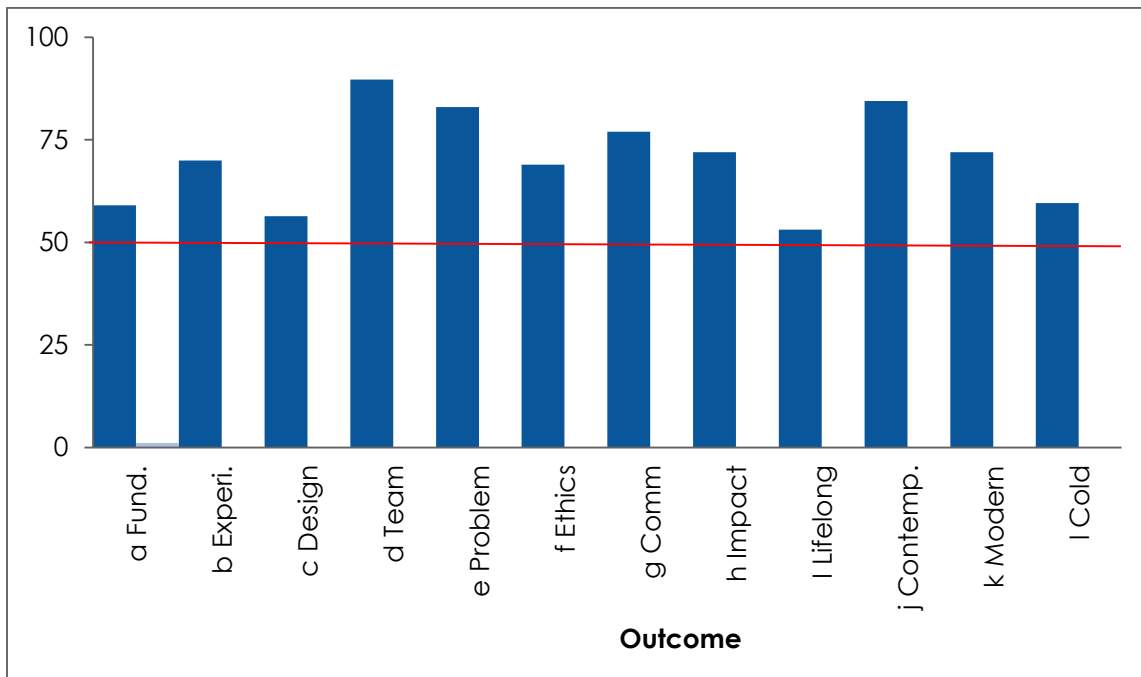


Figure 1: Averaged scores for outcome assessments based on 2015 data

## 2. Conclusions drawn from the information summarized above

The compiled results for all outcomes (summarized in Fig. 1) were presented at a faculty meeting in late Oct. 2015. Each faculty member ranked each outcome according to whether students failed, worked toward, met or exceeded the criteria. Then each faculty member made a recommendation whether for that outcome the program should be maintained, closely monitored, or modified.

These individual faculty recommendations were subsequently tallied up by the ABET coordinator and presented at the next faculty meeting in Nov. 2015. At that meeting, the faculty at large discussed the recommendation and came to the following conclusions.

Main Conclusions:

1. Student met the criteria for all outcomes (based on established scoring rubrics where a score of 50 points indicates "meet criteria" and >75 points mean "exceed criteria") and exceeded criteria for outcomes d, e and j.
2. Students have shown improvement (meeting established criteria) for the two outcomes (g) *communication* and (i) *lifelong learning*, monitored from the last 2 year cycle, where they were flagged due to lower scores.
3. Based on the above, the faculty members recommended to maintain the program with respect to most outcomes and to monitor the following:
  - (a) fundamentals, specifically focusing on math and statistics, for which FE results were below national average
  - (c) *design* (where criteria were barely met)
  - (g) *communication* (monitored before, though good scores this time)
  - (i) *life-long learning* (flagged for monitoring before, barely met criteria)Instructors of courses supporting these outcomes will consider these outcomes carefully in preparing and presenting the courses.

## 3. Curricular changes resulting from conclusions drawn above

In order to improve the identified areas, where student outcomes were low in this and/or past review cycles, a program change for the BS CE was submitted, which will be effective in the 2016-2017 catalog.

This program changes entail:

- Introducing a new class CE 437 in the curriculum, which focuses on technical communication and principles of design to better prepare students for the second part of the capstone design class CE 438. This is expected to improve performance for outcomes (c) design and (g) communication.
- Replacing the seminar by a field experience, to provide real world experience as recommended by the advisory board.

**4. Identify the faculty members involved in reaching the conclusions drawn above and agreeing upon the curricular changes resulting**

Collection and scoring of student work samples was done by the CEE faculty, as detailed in table 1.

Table 1: Source of student work products used for 2015 outcome assessment, instructors of courses from which student work samples were collected, and faculty evaluating student work samples for each outcome.

Outcome		Data source (faculty)	Faculty evaluating outcomes		
a	fundamentals	FE exam	Schiewer		
b	experiments	ES 341 lab (Schnabel)	Aggarwal	Ahn	Barnes
c	design	CE438 design (Whitaker)	Belz	Hulsey	Liu
d	teamwork	ESM 450 survey (Connor)	Schiewer		
e	problem solving	CE 432 homework (Hulsey)	Perkins	Schnabel	Stuefer
f	ethics	CE331 exam (Hulsey)	Perkins	Schnabel	Shur
g	communication	CE491 letter (Belz)	Stuefer	Toniolo	Zhang
h	global context	ESM 450 project (Connor)	Aggarwal	Ahn	Barnes
i	lifelong learning	CE334 report (Liu)	Belz	Hulsey	Liu
j	contemporary	CE326 paper (Shur)	Perkins	Schnabel	Shur
k	modern tools	ESM 422 report (Belz)	Stuefer	Toniolo	Zhang
l	northern issues	CE341 exam (Schiewer)	Aggarwal	Ahn	Barnes

All faculty attending the respective faculty meeting in Oct. 2015 participated in ranking all outcomes with respect to whether criteria were met, and whether close monitoring or changes should be recommended.

All faculty attending the respective faculty meeting in Nov. 2015 participated in developing the summary conclusions and recommendations detailed in section 2.

All faculty participated in numerous faculty meetings where program changes were discussed; Dr. Belz took the lead in preparing the program change.