**EXAMPLE UNDERGRAD ASSESSMENT REPORT**

**Objective:** To develop the ability to assess, analyze, plan and implement actions needed to manage the environment.

# **Outcome:**

Students will identify the requirements for performing environmental site assessments and environmental impact statements.

# **Evidence Collected and Findings**

**EVIDENCE COLLECTED**: Exam questions mapped to the student learning outcomes from the final exam in ETC 410 (a senior level course), were analyzed at the question level (groups of questions to identify strengths and weaknesses in knowledge of the content). 26 out of the 53 seniors in the program were in the class.

**FINDINGS**: Test questions from the final exam in ETC 410 (a senior-level course) were used to assess the outcome. The exam questions were mapped to each content area for the outcome. 4 questions were mapped to site assessments and 5 were mapped to impact statements. Overall, students were able to answer the questions correctly with an average of 85% correct for the site assessments questions and 81% correct for the impact statement questions. When reviewing the questions individually to identify patterns for when students lost points, it was found the questions students most often lost points on in the group of test questions on environmental site assessment were related to identifying the requirements for the final step of the environmental site assessment process. There was no clear pattern among points lost in the group of impact statement test questions. The basic data table (aggregate data only) is attached in the additional documents link.

# **Evaluation: Strengths and Areas for Improvement**

**STRENGTHS:** Generally, the program does a good job of teaching students to identify the requirements in site assessment. Students also demonstrate proficiency in knowledge of environmental impact statements.

**AREA FOR IMPROVEMENT:** While overall students are doing well with environmental site assessments, the program needs to work to strengthen students ability to identify the requirements for the final step of that process (the area in which students most commonly lost points on related test questions).

# **Actions Taken to Improve Programs**

The environmental site assessment process is taught initially in ETC 220. It is a foundational course for the program. Program faculty decided that additional time will be spent on teaching site assessment protocols, particularly the final, more complex steps in the process of completing an environmental site assessment, and an additional assignment (an additional case study) has been added to the course. The faculty have agreed that additional time needs to be spent on the site assessment process in ETC 220 and also agreed that it should also be stressed in other courses. The Director of Undergraduate Programs (DUP) worked with faculty that teach two other courses to create a plan to spend more time on this concept in their junior level courses as well. The final stages of environmental site assessment involve steps that are more complex and therefore multiple opportunities to reinforce student learning will be needed.

**Objective:** To develop the ability to utilize quantitative knowledge, skills, modern tools, and technologies for environmental management.

# **Outcome:**

Students will be able to analyze environmental samples for physical, chemical and biological contaminants.

# **Evidence Collected and Findings**

**EVIDENCE COLLECTED:**

**First measure:** Senior course final project in ETC 420 (senior level practicum course). There were 34 out of 53 seniors in the program enrolled in the class. The project was measured with a rubric and analyzed at the dimension level to identify strengths and weaknesses within the outcome.

**Second Measure:** Case study project in ETC 380. The course is mostly juniors (29 out of 49 juniors in the program) but does include some sophomores (9 out of 48 sophomores in the program). The case study projects were measured with a rubric and analyzed at the dimension level. (N=34 seniors).

**FINDINGS:**

**First Measure:** Overall students scored well on this difficult project. The overall average score was 4.1 out of 5 on the rubric (stdev=0.6). The rubric used and basic data tables (aggregate data only-no identifiers) are attached through the additional documentation link. Scores on the individual rubric dimensions were varied. Students scored higher (4.7; stdev=0.14) on the “data collection” related dimension and (4.2; stdev=0.12) on the “analyzing” dimension. Students scored 3.5 (stdev=0.11) on the rubric dimension related to “reporting” on environmental samples. The rubric used and basic data tables (aggregate data only-no identifiers) are attached through the additional documentation link.

**Second Measure:** Students in ETC 380 completed a case study mid- semester (but after the information is taught.) The rubric had several dimensions in common with the rubric used in ETC 420 for program assessment but also had additional dimensions specific to ETC 380. Overall, students scored well on the program assessment dimensions. Average score was 3.8 out of 5 on the rubric. Rubric dimension scores were varied. Students scored higher (4.4; stdev=0.12) on the ‘data collection” related dimension and (4.0; stdev=0.15) on the “analyzing” rubric dimension. Students scored 3.0 (stdev=0.11) on “reporting.” The rubric used and basic data tables (aggregate data only-no identifiers) are attached through the additional documentation link.

# **Evaluation: Strength and Areas for Improvement**

Both assignments were considered together to address the findings at the curriculum level.

**STRENGTHS:** The findings for both measures suggest that the program does a good job preparing students to collect data. Findings also suggest that students did well overall in their analyses based on the overall scores for this rubric dimension and the number of students scoring close to or above 4 (a score of 4 has been determined to be a benchmark proficiency level by program faculty- we would like to see students perform at this level or higher).

**AREA FOR IMPROVEMENT:** The program needs to spend more time on teaching "reporting" for both groups. As expected, students in the 300-level course scored lower on reporting, but it is also a concern that students at the 400 level still have room for improvement in their abilities to report on the data they have collected and analyzed. Even in the 400-level course, the average score was much lower than the desired benchmark level (4) and frequencies for the scores suggest that there are almost one third of the students are below average in reporting.

# **Actions Taken to Improve Programs**

The faculty decided that students were not getting enough practice writing technical reports based on their own data. As such, program faculty decided that two report writing sessions with small assignments will be added to the spring sections of ETC 380 and ETC 360 to assist with report writing. Additionally, ETC 420 will add one report writing assignment early in the semester to gauge students’ abilities to be sure they do not need further instruction prior to the project.