

BS in ENVIRONMENTAL SCIENCES
ASSESSMENT PLAN AND REPORT
~~2015-2016~~

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Table of Contents

1. Introduction.....	2
2. Program Purpose, Objectives, and Student Learning Outcomes	3
3. Three Year Cycle for Assessment of Student Learning Outcomes.....	4
4. Summary of 2014-2015 – 2015-2016 Assessment Activities.....	5
5. Summary and Discussion of Student Learning.....	6
6. Plans for Addressing Student Learning Outcomes 2015-2016 – 2016-2017	7
7. Changes Resulting from 2015 2016 Assessment.....	7

1. Introduction

Oregon Tech began offering the BS in Environmental Sciences exclusively at the Klamath Falls campus in 1995. Enrollment has ranged from a low of eight in 1995 to a high of 51 in 2014 (Fig. 1). We believe the decline between 2002 and 2008 is related to the growth of the AAS degree Natural Resources at Klamath Community College (KCC) and the establishment in 2006 of Oregon Tech's BS in Biology. Since 2008, however, the BS in Environmental Sciences has experienced a steady increase in enrollment, which may be explained by a combination of the following factors: new core and advisory faculty, new degree programs in Civil and Renewable Energy Engineering, expanded recruiting efforts, suspension of BS in Biology by the Natural Sciences Department, and a nationwide economic recession. Enrollment as of fall 2015 was 48 students, down three students from 2014 (Figure 1). The current enrollment goal for the program is approximately 60 students. Over the last five academic years, the Environmental Sciences ProTc 0.01 Tw 2.4.0 Tc 0.anr62r ,

that were enrolled full time,

2.3 Program Student Learning Outcomes (PSLOs) and courses where they will be assessed

In GIS 316, the project assessed required students to create a map; either a simple cartographic representation or as a result of researching a geospatial topic. The minimum acceptable performance at the 300 level is that at least two-thirds of the students are proficient for each criteria. Eighty six percent or more students were proficient or highly proficient in the four assessed criteria (Table 4). Students exhibited highest proficiency in designing an appropriate database for

geographic information systems (GIS) to solve geospatial problems				
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5. Summary and Discussion of Student Learning

5.1 PSLO 2: use geographic information systems to solve geospatial problems

Assessing our student’s work in the sophomore and junior level GIS courses was a useful exercise for faculty. In general, we were pleased with the competency of students in these courses; and we met or exceeded the minimum acceptable performance for each criteria.

Compared to the previous assessment cycle for PSLO 2 (2012 – 2013 Assessment Report), our results indicate that faculty have made strides to improve student outcomes. In GIS 205 i 2012-2013, none of the students assessed understood the fundamentals of GPS operation, and only 50% were able to use GPS to record location and attribute information. In contrast, during the current assessment cycle, 50% and 100% of students met those criteria, respectively (Table 3). However, there is still room for improvement, as it is our hope that 100% of all students understood the fundamentals of GPS operations by the time they complete the course. Faculty in the Environmental Sciences Program will continue to work towards that goal.

We observed similar promising results in GIS 316. In 2012 – 2013, we met our minimum acceptable performance criteria in three of the four criteria assessed, but only 67% of students met the criteria. In contrast, during the current assessment cycle, 86 or 100 % of students met criteria! Importantly, in 2012 – 2013, students did not meet the minimum acceptable performance for the criteria “design an appropriate database”. In the current assessment cycle, 100% of students assessed met this criteria; which is a large and worthy improvement.

Additionally, our indirect assessment of students via the student exit survey indicates that students perceive that Oregon Tech has very much prepared them to use GIS to solve geospatial problems. GIS is a strong selling point of the Environmental Sciences program, and students consistently make positive comments on their exit survey in this area. For example:

“Dr. Ritter though his passion of teacher and want for my success has made me the student I am

7. Changes Resulting for 2015-2016 Assessment

Substantial course changes were made after the last assessment cycle of PSLO 2, including combining two courses and changing the term in which GIS 205 is offered, to streamline the GIS curriculum for Environmental Science students. This was the first assessment of PSLO 2 since these curriculum adjustments have been made. ~~Results~~ Results of the current assessment will be shared with Environmental Science faculty, and faculty will continue to try and achieve greater student success, even though our assessment indicates that we have improved student learning and students are meeting ~~all~~ ^{most} of our criteria.

Assessment Item High
Proficiency (3)

Appendix 3. Student Project Assessment Rubric

Circle the level of proficiency, and provide any additional comments in the space provided below. Check the box to signify if your assessment score on an item was due to conversation, not material presented on poster.

Assessment Item	High Proficiency (4)	Proficient (3)	Limited Proficiency (2)	No Proficiency (1)
<p>Topic Selection</p> <p>Score based on additional conversations with student</p>	Identifies creative, focused, & manageable topic that has the potential to generate new knowledge or deeper understandings of system(s).	Identifies focused & manageable topic in a routine manner (e.g., student able to modify a single variable in experiment, or uncover knowledge that is new to their learning experience).	Identifies topic that while manageable/ doable, is too narrowly focused & leaves out relevant aspects of topic, or can't explain their hypothesis when asked.	Identifies topic that is far too general & wide-ranging as to be manageable and doable, & can't explain their hypothesis when asked.
<p>Existing Knowledge & Research</p> <p>Score based on additional conversations with student</p>	Synthesizes in-depth information from relevant sources representing various approaches (e.g., student competently draws from the research literature).	Presents in-depth information from relevant sources representing various approaches (e.g. student draws on background information such as textbooks, life experience, & prior course knowledge).	Presents limited, out-of-context, or poorly explained information from relevant sources representing lims 295.204 516.966 54.6evelle	

