

Environmental Science BS Program  
2014-2014 Assessment Report  
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The Environmental Science Program at Eastern Washington University is an interdisciplinary program that offers a practical, quantitative and technically based, cross-disciplinary program centered on biology, chemistry and geology. The program integrates classroom work with extensive field, lab and research experience and allows students opportunities to interact with working environmental professionals. All students take an identical core of Environmental Science courses complemented by a concentration in one of three natural science concentrations (Biology, Chemistry, Geology). There are currently 47 students enrolled in the program.

The Student Learning Objectives (SLOs) for the Environmental Science Program include students:

1. Develop an integrated knowledge of major concepts in the area of environmental science and an understanding of fundamental roles that biology, chemistry, and geology play in environmental science.
2. Demonstrate knowledge of the interrelationships among the physical and biological components of ecosystems.
3. Use epistemologically sound quantitative techniques for the analysis of biotic and abiotic samples and systems.
4. Demonstrate effective oral, graphical, and written communication abilities, and critical thinking skills as related to the environmental sciences.
5. Develop sufficient preparation in the environmental sciences to successfully compete in a graduate or professional program, or to realize employment in an environmental sciences-related career.

In this assessment report I will address SLOs 1 and 3. My assessment is based on final grades in two courses: Environmental Science 100 (Introduction to Environmental Science) and Biology 270 (Biological Investigation).

Environmental Science (ENVS) 100 is an exploration of environmental science that emphasizes a scientific approach toward understanding contemporary human interaction with the natural environment. The structure, function and interrelationships of terrestrial, aquatic and atmospheric systems are treated through the application of biological, chemical and geological principles. Over the last several years, students have had the opportunity to take ENVS spring, summer and fall quarters from a faculty member in Biology, Chemistry, and Geology, respectively.

The current ENVS students earned a final grade of 3.7 (standard deviation =  $\pm 0.44$ ), compared to the whole class averages which ranged from 2.5 – 2.8. Eighty four percent of the ENVS students earned a grade of 3.3 or better. Only three (6%) of our current students have earned an ENVS 100 grade less than 3.0. The above information suggests the ENVS program is successful in meeting the ENVS SLO #1. Our students do understand the major concepts in the area of

environmental science and understand the fundamental roles that biology, chemistry, and geology play in environmental science.

Student Learning Objective #3 was assessed using Biology 270, Biological Investigation. In this course, sophomores and juniors experience the technical specifics of the scientific method. Students are exposed to the epistemological process and learn to design and conduct scientific studies, analyze their data, and present their findings to the scientific community. This is primarily accomplished by the completion of a course long research project supplemented by lectures covering study design, data analysis, and scientific presentation (oral and written). The course is taught by wide variety of Biology Faculty and is available for students during all academic quarters.

In this course, our students earned an average final grade of 3.2, with an observed grade range of 2.2 to 3.9. The observed standard deviation of the final grade was 0.5, which suggests 68% of our students final grades fell between 2.7 and 3.7. Three students earned a grade less than 2.5. Clearly, there is some need to improve the comprehension of the quantitative aspects of the epistemological process. In an effort to address this issue, Biology has developed a new undergraduate course in study design data analysis offered by one of our new faculty, Kriztian Magori. As this course gets rolling, the ENVS faculty will encourage our students to enroll, which should serve to improve our accomplishing SLO #3.

This concludes my report.