“CLOSING THE LOOP”: PROGRAM IMPROVEMENT DOCUMENTATION AY 2015-2016

Department: Geology

Assessment Coordinator: Thor Hansen

Departmental Mission

The Geology Department at WWU is committed to excellence in both teaching and research. Our goal is to offer the highest possible quality education in the geological sciences at the undergraduate and graduate levels. The mission of our department is to serve three main populations: graduate students, undergraduate geology majors, and undergraduates from other departments for their general education courses. For all of these students we strive to create excitement about discovery and the process of geologic inquiry. We want to develop in all students an appreciation of how geological processes affect the earth and society so that they will be environmentally responsible, scientifically literate citizens. We strive to produce majors with an interdisciplinary content background in geology and the physical sciences who are competent in the field, who can work collaboratively, conduct original research, and effectively communicate their results.

Department Student Learning Outcomes

Geology BA Degree

Department Student Learning Outcomes:

Cognitive outcomes: Our students will have a deep understanding of the following foundational geologic principles:

1. Earth has a history of biological and physical change over billions of years.
2. Earth’s surface is affected by dynamic processes on a range of timescales.
3. Earth’s composition varies and these compositions provide the raw materials for the rock cycle.
4. Earth’s interior is dynamic and drives plate tectonics.
5. Earth scientists use repeatable observations and testable ideas to understand and explain our planet.
6. Geology and society are fundamentally inter-related.
Skills: Our students will have critical skills required by professional geologists. Graduates:

7. Have developed their observational, analytical and quantitative skills.

Geology BS degree

Department Student Learning Outcomes (all of the above plus):

Skills:

8. Can create maps and understand what they tell us about the Earth.
9. Will be able to apply physics, chemistry, and mathematics concepts to the study of Earth.
10. Will be able (alone or in teams) to present geological information clearly.

Geophysics BS Degree

Department Student Learning Outcomes (all of the above plus):

Skills:

11. Will be able to demonstrate general proficiency with concepts and quantitative problems involving Newtonian mechanics, energy and momentum

GUR Student Learning Outcomes

2. Analyze and interpret information from varied sources, including print and visual media.

3. Use quantitative and scientific reasoning to frame and solve problems.

Student Learning Outcomes Assessed This Year
**“Closing the Loop”: Program Improvement Documentation • Evidence Form**

(This year’s assessment task is to document program improvements informed by SLO assessment and other evidence. Use this form to document your improvements and the evidence and discussion that informed them. Turn in this form with your annual report to your dean.)

<table>
<thead>
<tr>
<th>Type of Change</th>
<th>SLOs Targeted for Improvement</th>
<th>Description of Program Improvement</th>
<th>Rationale</th>
<th>Evidence that will demonstrate if this change improves student learning.</th>
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<tbody>
<tr>
<td>Curricular</td>
<td>1</td>
<td>Additional pop quizzes and practice worksheets were introduced into GEOL 212 to improve their mastery of the geological time scale.</td>
<td>This outcome has been assessed by given a time-scale quiz at the beginning of the quarter. Students are aware of the quiz format and given worksheets to practice. Winter quarter 2016 average was 90%, while this quarter was even better at 92%. Both of these averages are better than they have been in the past.</td>
<td>Student performance on quizzes covering the geological time scale should increase in follow up courses such as GEOL 316.</td>
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<td>Curricular</td>
<td>4</td>
<td>A new field-based cross section assignment was introduced in GEOL 318 in order to improve their competency in making cross sections. This was in addition to an existing assignment of making a cross section from a map of a more geologically complex area.</td>
<td>The average score on the first assignment for all enrolled students during winter quarter of 2016 (n = 25) was 75%. This score represents an average of 71%, 83%, and 82% for BS Geology (n = 16), BS Geophysics (n = 5), and BA Geology (n = 3) majors, respectively. The average score on the second cross section assignment for W15 was 82%, representing average scores of 82%, 85%, and 76% for BS Geology, Geophysics, and BA Geology majors, respectively. The average score above 70% constitute passing grades. 6/25 students received non-passing grades on the first assignment and 3/25 received non-passing grades on the second (with one student ultimately failing the class).</td>
<td>Student performance on geological cross sections should increase in follow up courses such as GEOL 409/410.</td>
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<td>Student performance on the second assignment is generally higher than past course offerings, suggesting that having two cross section assignments helps attain this specific learning outcome.</td>
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