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.

Departmental 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.
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.
Student Learning Outcomes Assessed This Year:

<table>
<thead>
<tr>
<th>Assessment Measures</th>
<th>SLO’s Assessed</th>
<th>Use of the Information</th>
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<tbody>
<tr>
<td>ASBOG Exam (WA State geology licensing examination)</td>
<td>1-5, 7-9</td>
<td>15 of the 19 WWU students who took the exam in March 2012 passed.</td>
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<tr>
<td>Track grades on aerial map assignments in Geol 310.</td>
<td>2</td>
<td>The average score on this lab for the F2011 class was 86.7% compared to 77% for the F2010 class.</td>
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<tr>
<td>Graduation rates</td>
<td></td>
<td>Seniors were having a difficult time getting their 400-level class requirements because they were not offered regularly. Also required core courses were taught at different times each year which hampered long-term scheduling for students.</td>
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Program Changes Based on Assessment
The ASBOG Exam is a challenging evaluation that covers a wide range of skills necessary for professional geologists. We are pleased with the WWU turnout for this exam and the pass rate.

The improvement in the aerial map exercise may be due to a format change made in the way the lab was administered. The instructor emphasized the model answer that was provided in the assignment and asked students in discussion to describe the characteristics of a high quality description and interpretation. Apparently, clarifying expectations helps students focus their efforts. To test this hypothesis, we will administer the lab in F2012 the same way as F2011 and see if the results are similarly positive.

We eliminated some courses and consolidated requirements across the program to make it easier for seniors to get the courses they need to graduate in a timely manner. We also created a "permanent" schedule for core courses in order to provide greater predictability for students when they schedule their classes.
Changes made in previous years based on assessment findings:

2010-2011:
Senior exit interviews, alumni contacts, and professional employment statistics, all indicated a need for student training in economic geology. This year we added a course in economic geology (Geology 432) to our curriculum.

Senior exit interviews, alumni contacts, and employer feedback, all indicated a need for a geology degree with a greater emphasis on math, physics and geophysics. This year, in conjunction with the Physics Department, we created the Geophysics B.S.

2008-2009:
Senior exit interviews and alumni surveys indicated a need for increased student training in GIS (Geographical Information Systems). This year we created a GIS course (Geology 213) and made it a degree requirement. We also instituted an online course planner to help students and their advisors facilitate their degree progress.