General Information

1. Name / Number of Course / Sequence:
   GEOL 1110 Historical Geology

2. SLO(s) being assessed:
   Student will understand and appreciate methods and issues of science and technology.

3. Department:
   Geology and Geography

4. Department Representative:
   Ronald D. Lewis

5. AGSC Content Alignment:
   AREA III: Science and Math

Assessment Information

6. Assessment Method: [Explain how assessment for the measures associated with this SLO – not grading for the course as a whole was conducted.]
   See end of report

7. Findings: [What assessment data did each assessment method produce?]
   See end of report
8. How did you or will you use the findings for improvement:  [What questions / issues/ concerns did your data raise for the faculty teaching the course?  What discussion did the faculty have about the findings?  What future actions to improve student attainment of this outcome will the department / program takes as a result of this analysis?] 

None

9. Additional comments: [What else would you like the Committee to know about your assessment of this course or plans for the future?] 

None

10. Core Curriculum General Education Committee Comments:

   More attention to how the methods address the specific measures, and how data leads to instructional revision, would be useful moving forward. There is no report of assessment of the measures, just an overall impression. The revisions are in logistics--the way the students will be examined, but no pedagogical assessment is attempted, nor revisions proposed.

CCGE Assessment Report for GEOL 1110 Historical Geology

2010-2011

Prepared by Ronald D. Lewis, PhD

Department of Geology and Geography

October 13, 2011

Background:

GEOL 1110 Historical Geology is the second of a two-course, laboratory-based sequence of introductory courses that broadly address the geosciences. The course focuses on the origin and evolution of Earth through time, and life on Earth through time as recorded in rocks and fossils, and thus meets the second part of the criteria for introductory geology courses outlined by the AGSC. This focus is maintained in lecture and in weekly 2-hour laboratory sections that include hands-on experiences incorporating the scientific method and demonstrating basic concepts and tools.
This introductory course is taken by non-majors who opt to complete GEOL 1100 Physical Geology (rather than SCMH 1010 Concepts of Science) but is also required of declared Geology majors.

**Alignment:** Area III – Natural Sciences and Mathematics

**Goal:** #6: Scientific Literacy

**SLO Alignment(s):** SLO 10 – Students will understand and appreciate the methods and issues of science and technology.

**Summary of assessment plan and implementation:**

A set of 10 questions (Supplement 1) were attached to an examination in each lecture section. The questions were carefully selected by the three professors involved to assess all five measures outlined for SLO10. The questions included a mix of multiple-choice, fill-in-the-blank, and short answer formats, with some questions keyed to illustrations. Each of the 10 questions was weighted equally and scored as one point each.
SUPPLEMENT 1

PART A. Examine the geologic cross section shown below and address the following questions and problems.

1. Which rock is older? Rock unit B or rock unit D? ______

2. What stratigraphic principle(s) did you employ to establish the age relationship between rock units B and D?

3. Which rock unit formed first? Rock unit D or rock unit E? ___

4. What stratigraphic principle did you employ to establish the age relationship between rock units D and E?

5. Which early geologist introduced the principle referred to in question 4?

6. What kind of invertebrate fossil is illustrated in the inset for rock unit D?

   a. brachiopod      b. tabulate coral      c. ammonite      d. trilobite      e. ostracoderm

7. Based on your answer to question 7, you can conclude that the age of unit D is ___.

   a. Triassic to Recent     b. Paleozoic   c. Cretaceous    d. younger than Permian    e. Cenozoic

8. Suppose a paleontologist tells you that the fossil shown below indicates a Cambrian age (543-490 MY) for unit D. Considering the stratigraphic context of unit D, what scientific approach(es) could be taken to test the age of fossil-bearing unit D? Be as specific as possible.
PART B. Examine the cross section below and address the following questions and problems.

1. Based on your observations of the distribution of sediments at the surface and in the subsurface, what can you conclude about sea-level change in the area?

2. Assuming that Earth is progressively becoming warmer due to greenhouse gas emissions (e.g., CO₂, etc.), what concerns might you have for the fate of coastal areas, particularly those that are heavily developed or urbanized? Explain your answer thoroughly.

Assessment results:

A total of 168 students were assessed successfully (Table 1). Scores shown are the average score for each section along with the corresponding standard deviation. The most notable feature of this table is that student performance varied greatly by instructor, which was also observed in the preceding course, GEOL 1100 Physical Geology.
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Table 1. Assessment results from AY 2010-2011

**Analysis and future plans:**

Ongoing discussion centers on the differing results according to the circumstances under which the examination was delivered and the format of the question. Lewis attached the assessment supplement at the end of the course examination with a statement that the following questions would not impact the student's grade for the course rather than inserting questions into the body of the examination. This final examination was not comprehensive, and many of the topics in the assessment questions were covered in the first part of the course; thus students most likely had not reviewed this material before the examination. Multiple choice questions were almost invariably answered whereas discussion questions were sometimes skipped. In contrast, Uddin imbedded the questions in the test itself; the students understood that they would be graded on their results, and therefore took the assessment questions more seriously. In the future, faculty involved in the assessment process will coordinate the test administration to ensure that the classroom circumstances are more uniform so that student learning can be better assessed.