III. Program outcomes – B.A. in Geology

A. List of program 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 (e.g. erosion, deposition, volcanic activity, earthquakes)
3. Earth's composition varies and these compositions provide the raw materials for the rock cycle
4. The 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 BA students will have critical skills required by a geology-focused liberal arts education, appropriate for careers in education, commerce, or public service.

7. Graduates have developed their observational, analytical and quantitative skills (particularly classroom and computer).

B. Outcomes Assessment Matrix

The department has chosen one or two courses in which to assess each of the eleven program outcomes. The matrix below shows which courses are chosen for such assessment.
### Geology B.A.

#### Cognitive Outcomes

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 (e.g. erosion, deposition, volcanic activity, earthquakes)

3. Earth's composition varies and these compositions provide the raw materials for the rock cycle

4. The 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

7. Graduates have developed their observational, analytical and quantitative skills (particularly classroom and computer)

### HOW ASSESSED

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<tr>
<th>geology course number</th>
<th>211</th>
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<th>306-406/311</th>
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<tbody>
<tr>
<td>1. Earth has a history of biological and physical change over billions of years</td>
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Quizzes and exams that cover the geological time scale will be used to assess the mastery of concepts important to Earth history, including an understanding of "deep time".

Track grades on the Air Photo Analysis Lab Assignment

Two assessments. First, track lab exam grades (igneous lab exam and metamorphic lab exam). Second, choose a subset of samples for which students must provide more detailed answers about rock formation (origin, source, protolith if applicable, plate tectonic environment, etc.) and linking related rocks through the rock cycle

Scores on appropriate exam questions and plate tectonic labs will be assessed.

Track grades on cross-section labs.

Track grades on the Humans as Geomorphic Agents (HaGA) Problem Set and one online discussion about HaGA

Track grades in final course project.