



Geoscience | 2015-2016 Assessment Report

1. Please give a brief overview of the assessment data you collected this year.

INTRODUCTION:

Outcome #2

Students will apply the scientific method to investigations of geological processes, Earth systems, and interactions among the various physical and biological realms utilizing standard scientific field and laboratory methods.

Course Assessed

GEOSCI 340—Introduction to Mineralogy and Petrology. Min/Pet lays the foundation for many of the following upper level courses. Several laboratory assignments are set up with the scientific method in mind, with the assignment posing a question and the student’s task to collect information and weigh in on possible hypotheses. Throughout the semester, several peer-reviewed articles are assigned and we dissect the papers as a class, identifying assumptions, areas that could be clearer, and whether the conclusions are acceptable.

Nature of Assessment

In December of 2015, students presented (~15 minutes) the results of their research projects, aimed at understanding a singular igneous system. Students were tasked with diving into peer-reviewed literature to discover more about their chosen igneous system, and where appropriate, applying concepts learned during class. Special attention was given to identifying hypotheses (even when implicit), understanding data collection techniques, and interpretation of data and model construction. Assessment of Outcome #2 took place during their presentations using the rubric provided below.

ASSESSMENT:

Criterion	0 = Unacceptable	1 = Acceptable	2 = Exceeds Expectations
A. Describing the question being asked and the hypothesis	Did not discuss	Extracted and discussed the question being asked and hypothesis being tested	Placed these questions and hypotheses into a broader context
B. Description of Data, and the Techniques and Methods utilized to collect	Weak treatment	Adequately described data collection methodology	Included additional information, such as: limitations, error, and/or additional data from other sources
C. Conceptual model	Explanation poorly rooted in data or major flaws in logic	Explanation consistent with data	Offered multiple valid conceptual models

RESULTS:

Criterion	Student 1	Student 2	Student 3	Student 4	Student 5	Average
A	1	1	1	1	1	1.0
B	0	1	2	0	1	0.8
C	1	1	2	1	1	1.2
Average	0.7	1	1.7	0.7	1	1

2. How will you use what you've learned from the data that was collected?

DISCUSSION:

First and foremost, it is difficult to draw conclusions from such a small pool of data. Averages may not be reflective of the content taught in the course (for better or worse). With this caveat stated, the results are within acceptable bounds. Assessed criteria A and C, essentially the question and the answer stages of the scientific method, resulted in acceptable averages (A=1.0, C=1.2). Assessed criterion B was slightly below average. Moving forward, as more rocks are collected from various locations around Wisconsin and abroad, additional labs can focus on investigating single systems in a suite-based approach. These sample suites are well suited to learning using the scientific method. It is hoped that eventually half of the labs for this course will be of this nature.