

# Geology BS

## Goal 1: Basic skills for geology majors

**Goal Description:**

Deliver basic skills that geology majors will need to be successful in their subsequent coursework.

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

**Goal 1 Objective 1: Apply Basic Skills Required of a Geology Major**

**Learning Objective Description:**

Students completing the introductory geology courses will demonstrate an understanding of the basic skills required of a geology major to succeed in subsequent coursework.

RELATED ITEM LEVEL 2

**ICF Goal 1 Objective 1: Basic Geology Skills Evaluation**

**Indicator Description:**

All students enrolled in Physical Geology complete two practical exams that measure their ability to apply basic geological skills such as observing mineral properties necessary for mineral identification and being able to read maps and make geological interpretations based on map observations. Certain embedded questions, samples, or problems will be evaluated to measure student performance on specific basic skills.

**Criterion Description:**

At least 70% of the students will be able to perform 70% of the required skills in the embedded questions, samples, or problems. The remaining 30% of the students will be able to perform 50% of the required skills.

**Findings Description:**

On the rock and mineral practical we embedded samples where students had to determine mineral cleavage, a basic skill for identifying minerals. We did this again this year to see if there has been any change compared to last year. This is a physical property that students have difficulty observing. 50% of the students were able to determine the mineral cleavage correctly 70% of the time or better. But 25% of the students were able to determine the mineral cleavage less than 50% of the time.

On the rock and mineral practical we also embedded questions where students had to determine the texture of an igneous rock, a basic skill for classifying igneous rocks. We had noticed students having issues with this concept, but wanted to get a quantitative measure of student skill levels. Only 40% of the students were able to determine the appropriate texture correctly 70% of the time or better. But 53% were only able to determine the appropriate texture correctly 50% of the time.

On the map skills practical we embedded questions regarding the use of basic coordinate systems. We had observed that students seem to be having difficulty stating locations using various coordinate systems. Only 26% of the students were able to determine location coordinates correctly 70% of the time or better. 37% were only able to determine the correct coordinates 50% of the time.

On the map skills practical we also embedded questions where students had to make a geological interpretation based on map observations. Students always seem to struggle with this, but we had not previously quantified their struggle. Only 26% of the students were able to make the correct geological interpretation based on map observations 70% of the time or better. 37% were only capable of making the correct geological interpretation 50% of the time.

RELATED ITEM LEVEL 3

**Action Goal 1 Objective 1: Basic Geology Skills Evaluation**

**Action Description:**

We will continue with the embedded question format of evaluating specific basic geology skills in the introductory courses. We will act upon the information obtained from the results to develop better methods of teaching these basic skills. For example, the findings indicate that we may be doing a satisfactory job of communicating the concept of mineral cleavage, but there may be room for improvement. On the other hand we definitely need to develop better means of teaching igneous rock textures and geological