

**Major/Program: Geosciences; Report by Dr. Kristin Huysken, Chair**

**Annual ASSESSMENT of the Major/Program**

**Fall 2018-Spring 2019**

What are the student learning outcomes in the **major/program**?

1. Program will cultivate critical and analytical thinking skills
2. Program will produce well-prepared students capable of quantitative and qualitative analyses
3. Students will possess a general knowledge of geologic theory and demonstrate its application in solving geological and environmental problems.
4. Program will develop in students the ability to communicate scientific concepts to scientists and non-scientists.

Which outcome(s) did you assess this academic year?

Outcomes 2 and 3 were assessed.

**How did you assess** the learning outcomes this academic year?

This assessment involved student reflections (pre- and post-project) on a bedrock mapping and cross-section interpretation project. It is part of a learning initiative where students revisit the same or similar field areas multiple times over the course of their program. Each time, students complete increasingly sophisticated field projects, sometimes adding to previous work, and reflecting on their confidence and understanding (with respect to specific techniques, analysis, and ability to interpret) of the local and regional geology.

Severe weather resulted in a change to the scheduled offering of this field project. As a consequence, the field project designed for a class in Structural Geology, was modified and run in a slightly lower level class in Petrology.

This made for an interesting evaluation where students with different levels of field experience participated in the project.

Please **summarize the data** you have collected this academic year.

Results for two groups of students (1. very little/no field experience, and 2. some field experience) are tabulated below.

Students with less field experience report greater gains in skills related to reading topographic maps than their more experienced counterparts.

All students, regardless of previous field experience, report significant improvement with respect to identifying geologic features, and skills related to making appropriate measurements and geologic map construction.

	<b>Students with none or very little</b>	<b>Students with some field</b>	<b>Students with none or very little</b>	<b>Students with some field</b>
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	field experience (n=5)	experience (n=2)	field experience (n=5)	experience (n=2)
Average Growth Mindset Score 1-5 (2 questions)	4.4	4.5		
	Pre-activity Survey Results. Range is 1-5, with 1 = not confident at all, 5 = very confident.		Post-activity Survey. Percent (%) reporting improvement (either slight or significant) for ALL questions in group.	
Topographic Map Reading (3 questions)	3.3	3.7	100%	0%
Identifying rocks type, contacts, structures (3 questions)	3.0	3.2	80%	100%
Measuring bearing, attitude, orientation of rock features (2 questions)	1.6	4.0	100%	100%

**Please describe any programmatic changes you have made or are planning to make based on the data you have collected (action steps).**

We have discovered that students do benefit from revisiting field areas as they progress through their program, and have purposefully used this knowledge construct increasingly sophisticated projects for students as they revisit areas. There are also “cons” to this type assignment structure. These include limiting the variety of geologic terraines to which students are exposed during their college career.

Please report on the progress of your **action steps** reported in 2017-2018. See <http://www.iun.edu/campus-assessment/assessment-results/index.htm> for your previous unit reports.

G317 (offered every other year), was restructured in Fall 2017, into four individual 4-week units that are scaffolded to lead students through the process of preliminary research, methods of data collection, data analysis, and data written/oral presentation. The effect on student outcomes will be measured in Fall 2019.

G317 results were collected through Fall 2019 and will be reported on in 2020.

**\*\*Note:** Please use this template to provide the responses to the prompts above.\*\*