

## Student learning outcomes assessment plan, Geology, B.S.

From 2016-2017 program review self-study report (pages 31-33)

### D. Learning Outcomes Assessment

The learning outcomes and assessment plan for Geology Program are listed below. This system was developed in 2010, and has been used each year since. Our annual assessment reports are provided as Appendix H.

Students who complete the BS in Geology are expected to:

1. Be able to identify, describe, and classify common, and some uncommon, Earth materials (minerals and rocks); make scientific observations of these Earth materials in the field and in the laboratory; and interpret their observations in a scientifically sound manner.

**Assessment 1:** Field notebook aggregate score during GEO 395. Our goal is to have at least 80% of our students score at the B level (74% or above). We also hope to have the aggregate score of our students exceed that of their peer group (students from other Universities who participated at our field camp in the same year).

**Assessment 2:** Exit interview

2. Be familiar with the arrangement and structure of these Earth materials, including how they originally form and how they are affected by physical, chemical, and biological activity after they form.

**Assessment 1:** Field notebook aggregate score during GEO 395. Our goal is to have at least 80% of our students score at the B level (72% or above). We also hope to have the aggregate score of our students exceed that of their peer group (students from other Universities who participated at our field camp in the same year).

**Assessment 2:** Exit interview

3. Develop skill in the area of constructing and interpreting geologic maps.

**Assessment 1:** Geologic map aggregate score in GEO 395. Our goal is to have at least 80% of our students score at the B level (72% or above). We also hope to have the aggregate score of our students exceed that of their peer group (students from other Universities who participated at our field camp in the same year).

**Assessment 2:** Exit interview

4. Develop models of the geometry and spatial relations of Earth materials at depth.

**Assessment 1:** Cross section aggregate score in GEO 395. Our goal is to have at least 80% of our students score at the B level (72% or above). We also hope to have the aggregate score of our students exceed that of their peer group (students from other Universities who participated at our field camp in the same year).

**Assessment 2:** Exit interview

5. Develop an appreciation for the enormity of time and the history of the Earth.

**Assessment 1:** Stratigraphic Column score in GEO 395. Our goal is to have at least 80% of our students score at the B level (72% or above). We also hope to have the aggregate score of our students exceed that of their peer group (students from other Universities who participated at our field camp in the same year).

**Assessment 2:** Exit interview

6. Develop an appreciation of society's dependence on Earth resources and on the interaction between human activities and the natural environment.

**Assessment 1:** Rating on GEO 296 term paper section on Economic Geology

**Assessment 2:** Exit interview

**Assessment 3:** Have at least 80% of our graduates complete a GEO 306 – Regional and Area Studies course

7. Learn the theoretical bases of geology and utilize opportunities to apply theoretical knowledge to field based problems.

**Assessment 1:** Ability for >80% of our recent graduates to make first career step in graduate school or in the profession.

**Assessment 2:** Ability for >50% of our recent graduates to complete an independent research project.

**Assessment 3:** Exit interview

8. Develop appropriate analytical and quantitative skills for a career or advanced study in geology.

**Assessment 1:** Ability of >80% of our graduates to pass out applied quantitative course (GEO 360, 361, 362, 364) at the B level or higher.

**Assessment 2:** Exit interview

9. Develop appropriate written and oral communication skills for a career or advanced study in geology.

**Assessment 1:** GEO 296 Research Paper and Presentation.

**Assessment 2:** Exit interview

Our annual assessment procedures have three parts. The first part of assessment occurs in May in GEO 296 – Stratigraphy, which is required of all Geology majors and addresses learning outcomes six and nine. This assessment is based on rubrics used for the GEO 296 research project. The second part our assessment is an exit interview that is given to all Geology graduates each May. Historically, this has been done in hard copy, but beginning next year it will be administered electronically. The third part of our annual assessment occurs at the end of field camp, where scores of our students are evaluated in comparison to our expected benchmarks and also to the performance of external students who complete the camp. In other words, we expect a minimum level of performance for our outcomes, and we also like to see our cohort of students outperform the external students in their capstone experiences. At this time, we also closely evaluate the transcripts of each of our graduates, and we monitor their first career steps.

The Department of Geography-Geology has an assessment committee that consists of tenure-line faculty and the Department Chair. The geologist on the committee gathers and analyzes the data, and writes the first draft of the report. The report is given to the Chair, who has the opportunity to modify and improve the report, and suggest recommendations for program improvement. The draft of the report is shared with the balance of the Geology faculty, who have the opportunity to suggest modifications. Once the report is vetted, and Faculty have had the chance to meet and discuss the report as a group, a final draft is made and it is submitted to the central administration. The recommendations for program improvement are then worked into the curriculum. The assessment plan is a living document, and can be revised at any time. The last two major revisions of Geology assessment were developed after the completion of the last two program reviews

The recommended changes to the program are provided in the annual assessment reports. Below is a summary of our findings for 2010 to 2015.