A. ACTIONS TAKEN TO IMPROVE STUDENT LEARNING

What actions did you take in 2012-2013, based on previous assessment findings, to improve student learning in your program? (Refer back to plans indicated in “Response to Assessment Findings” in 2011-2012 Assessment Report.)

As being reported in July 1, 2011 – June 30, 2012 Assessment report submitted on November, 2012, the report on major findings was concentrated on the survey of post-graduate achievement, such as attending graduate school or employment in the Earth Science field, and students’ abilities in scientific writing. Since the university switched from quarter to semester system in the fall of 2012, the major efforts were to implement the change. No other specific actions were taken. However, in addition to writing intensive courses and courses with substantial writing requirements, such as laboratory reports and term papers, EES 401 (Scientific Writing, 3 credit hours) was offered as EES 4510 with the same credit hours to enhance student’s scientific writing skills.

EES 434 Field Geology was proposed as the capstone field course to assess students’ abilities to apply knowledge learned to solved problems in Earth Sciences under quarter system. EES 4350 Field Mapping is the equivalent course under semester system.

This course was restructured in the summer of 2013 as to accommodate a small student registration. The course is normally organized as a 2 week field mapping capstone course for seniors in the departments EES program.

The reorganization had the students engaging in a week long assortment of geologic activities locally (in the Dayton area) and then a very quick and short trip to Pennsylvania for a true attempt at a field mapping experience. At the end of the 2 weeks it was apparent that it was imperative that we return the structure of the class to a true 2 week field mapping experience in Pennsylvania.

The reorganized Module to accommodating students proved to be too short and too restrictive to allow the students a full mapping experience. The 2013 class provided great insight into the original structure of the class. We found that a reorganization to accommodate the students, in the fashion that we did, was not as successful as the original structure.

B. STUDENT LEARNING OUTCOMES ASSESSED AND EXAMINED

Which Program Level Student Learning Outcomes did you assess and examine during 2012-2013? List the Program Level Student Learning Outcomes using the format of “Graduates will be able to ______________________.”

(Please note that due to specialized accreditation requirements, accredited programs may be required to assess and report on all program level student learning outcomes every year; accredited programs should report in a manner that will align with their accreditation. Programs not carrying specialized accreditation may assess all of their learning outcomes every year but may choose to report on 2-3 per year, looking at several years of data.)

The learning outcomes for BA/BS Earth Sciences options under the Earth and Environmental Sciences degree program are:
Outcome 1: Students will acquire the knowledge to understand fundamental concepts of earth sciences and be able to solve problems applying that knowledge.

Outcome 2: Students will master fundamental field techniques necessary to the solution of geological problems.

Outcome 3: Students will demonstrate the ability to write in a style consistent with that found in a scientific journal.

C. METHODS FOR COLLECTING DATA

Which students were included in the assessment? (For example, all seniors completing Course X in Spring 2013, all graduating seniors, etc.)

Students included in the assessment were all graduating seniors and students completing EES 4350 (Field Mapping) during Summer Semester, 2013.

D. ASSESSMENT MEASURES

- What key assessments/assignments/student work did you examine to directly assess the Program Level Student Learning Outcomes listed above?
- What, if any, indirect assessments (e.g. exit survey, alumni survey, focus groups, etc.) did you use to indirectly assess the Program Level Student Learning Outcomes listed above?

Graduates’ employment and attending of graduate school.
Discussion with Undergraduate Advisor, David Schmidt.
Communication with Field Mapping instructor, Angie Clayton.

E. SIGNIFICANT FINDINGS

What did you find from your assessments? What did your data reveal about how well students are achieving the Program Level Student Learning Outcomes that you listed above?

Outcome 1: By observations, we found most graduates were able to secure employment with companies in EES fields or to attend graduate schools. However, a comprehensive survey was not conducted.

Outcome 2: The instructor for the field mapping course (EES 4350) found that students without a Structural Geology course (EES 421, EES 4210 or equivalent) tend to struggle more to understand the geologic settings in the field. Students should be advised to take Structural Geology before the field course.

Outcome 3: The coordinator was unable to find specific outcomes for Outcome 3. However, the EES Department’s undergraduate advisor noted that program students have favorable pass rates for upper-level program courses having rigorous writing requirements. This suggests that program students are indeed developing solid writing skills. For example, EES 3160 (Stratigraphy and Sedimentology) is an upper-level program course taken by students in both the BS and BA Earth Sciences degree programs. Sixteen students took this during Spring Semester, 2013, and all graduates from these degree programs during the assessment period have taken this course. Seven laboratory reports are required for this course and each one is required to be in the style of a scientific journal. One report is marked with comments on the writing style and students are given the opportunity to re-write the report. In addition, one paper from a scientific journal is read and analyzed by the students. In addition, several students had abstracts of their research published in conference proceedings and similar publications, which further attests to the students’ writing abilities. These publications were associated with the students’ presentation of their research at conferences and other public forums.

These results indicate that students are indeed fulfilling the learning outcomes for BA/BS Earth Sciences options. However, the EES Department has evolved through merging of two academic unit (Department of Geological Sciences and Institute of Environmental Health), faculty retirements and new hires, and the quarter to semester conversion since the first assessment document was finalized. The current assessment program needs to be revisited to reflect those changes to have a more meaningful assessment.
F. DISCUSSION OF RESULTS
How were results shared? With whom were they discussed?

Results were shared by personal communications with the EES Department’s Undergraduate Advisor. The coordinator also provided updates about the BA/BS Earth Sciences Programs to all EES faculty and staff during departmental meetings.

G. ACTIONS PLANNED TO IMPROVE STUDENT LEARNING
Based on what you learned from your assessment of the Program Level Student Learning Outcomes, what actions do the faculty in your program plan to take to improve student learning in your program/area? Describe the steps faculty have taken/will take to use information from the assessments for improvement of student performance and the program. List additional faculty meetings or discussions and planned or actual changes to curriculum, teaching methods, approaches, or services that are in response to the assessment findings.

A faculty meeting shall be scheduled to revisit the assessment program: what learning outcomes should be assessed? How should these learning outcomes be assessed? A meaningful program assessment requires the participation of the whole department, with each faculty member assuming various roles of the assessment program.

Also, as mentioned above in the discussion of Outcome 2, students will be advised to take a course in structural geology prior to enrolling in the summer Field Mapping course.

Finally, the EES Department will continue to: (1) encourage program students to participate in research; and (2) convey to EES faculty the importance of promoting research opportunities to their undergraduate students.

H. SUPPORTING DOCUMENTS (recommended)
Please attach minutes of program faculty meeting where discussion of results and action planning occurred and any other relevant documents.