Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

**SLO 1: Fundamental concepts**
Students will demonstrate an understanding of fundamental concepts in areas of earth surface morphology; mineralogy; earth history and evolution; environmental science; surface and subsurface earth processes; paleontology; earth structures; petrology; stratigraphy; and geophysics.

**Related Measures**

**M 1: Pre/post test**
All senior level undergraduate students will complete pre- and post-course exams of the EES capstone course, Senior Seminar. Exams will be rated on a faculty-developed rubric which will measure the students’ ability to demonstrate an advanced understanding on the various various sub-fields of Earth and Environmental Sciences. The rubric will score each student's ability on a scale of 0 to 2 as follows: 0 = student does not demonstrate an advanced understanding of the given sub-field; 1 = student demonstrates a basic understanding of the given sub-field; or 2, student demonstrates an advanced understanding of the given sub-field. We will measure how many students improve their understanding of the sub-fields from the pre- to the post-course exam.

Source of Evidence: Faculty pre-test / post-test of knowledge mastery

**Target:**
Based on the 0-2 rubric rating, our target is that 50% of students will improve their rating between the pre- and post-exam.

**SLO 2: Construct and effectively present information and concepts**
Students will be able to construct and effectively present earth and environmental sciences information and concepts visually and verbally through oral presentations.

**Related Measures**

**M 2: Oral presentations**
All undergraduate students will give oral presentations in the EES capstone course Senior Seminar and Environmental Geology (both courses are required for all EES students). Presentations will be rated on a faculty-developed rubric which will measure the students' ability to construct and effectively present information and concepts visually and verbally. The rubric will score each student's ability on a scale of 0 to 2 as follows: 0 = student does not demonstrate the ability to construct and effectively present information and concepts visually and verbally; 1 = student demonstrates a basic ability to construct and effectively present information and concepts visually and verbally; or 2 = student demonstrates an advanced ability to construct and effectively present information and concepts visually and verbally. We will measure how many students improve their ability to give oral presentations over the course of the semester.

Source of Evidence: Capstone course assignments measuring mastery

**Target:**
80% of the students will improve their ability to give an oral presentation over the course of the semester based on a rating rubric developed by faculty consensus.

**SLO 3: Present and interpret data**
Students will be able to explain earth and environmental sciences concepts and present and interpret data in a technical writing format by their date of graduation.

**Related Measures**

**M 3: Written assignments**
All undergraduate students will write at least two technical papers in the EES capstone course Senior Seminar and Environmental Geology (both courses are required for all EES students). Papers will be rated on a faculty-developed rubric which will measure the students' ability in different aspects of writing: organization, grammar, and clarity. We will measure how many students improve their ability in each of these aspects of writing over the course of the semester.

Source of Evidence: Written assignment(s), usually scored by a rubric

**Target:**
Over the course of the semester, 80% of the students will show improvement (based on rubric rating) in the following categories: organization, grammar, and clarity.