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

**SLO 1: Explain core Concepts in PGEE**

Explain core concepts in Population Genetics, Ecology and Evolution (the effects of evolutionary forces on allele frequencies, the operation of natural selection, macroevolutionary patterns and processes, population biology and community ecology)

**Related Measures**

**M 1: Pre-Post Test in PGEE**

Students will complete a test at the beginning and end of the course. Pre- and post-course testing using concept inventories for population genetics, ecology, and evolution, developed from Freeman and Herron, Evolutionary Analysis (population genetics and evolution), and Ricklefs and Relyea, The Economy of Nature (ecology) as there is no validated concept inventory instrument in common use for any of these fields at the level of instruction in this course.

Source of Evidence: Academic indirect indicator of learning - other

**Connected Document**

Bios 1071

**Target:**

50% of students will achieve a normalized learning gain of 50% or higher for the semester in key concept/content areas (e.g., evolution).

**SLO 2: Explain Cellular and molecular biology**

Explain core concepts in Cell and Molecular Biology

**Related Measures**

**M 2: Pre/post test**

Pre- and post-course testing in BIOS 2114 using the IMAC Cell and Molecular Biology instrument (Shi, J et al 2010. CBE-Life Sciences Education 9: 453-461.)

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

**Connected Document**

We surveyed Bios 2114 students

**Target:**

Each class tested will achieve a normalized learning gain of 50% or higher for the semester.

**SLO 3: Analysis and explanation of advanced concepts**

Explain advanced concepts across the breadth of topics and levels of organization in the biological sciences

**Relevant Associations:**

**Related Measures**

**M 3: ETS Major Field Test**

All students will take the ETS Major Field Test in Biology during their senior year.

Source of Evidence: Standardized test of subject matter knowledge

**Connected Documents**

ETS item analysis for 2012-2013 cohort

Major Field Test Scores and Analysis

**Target:**

Mean overall score each semester will rank above the aggregated mean score of current test cohorts from UNO peer institutions.