

ENGAGING FACULTY IN ASSESSMENT

Mathematics and Statistics Department

The Mathematics and Statistics Department revised their Program Student Learning Outcomes (PSLOs) through the collaborative effort of all tenured and tenure-track Departmental faculty. During the revision process, the faculty agreed on an Assessment Plan that included specified assessment methods for each of the courses in the major.

Motivation

The former Departmental PSLOs were a broad set of outcomes used for all three tracks of our major: Pure Math, Actuarial Science, and Secondary Education. The outcomes addressed only what was common to the three tracks. This meant critical components to the individual tracks were not listed as outcomes. Specifically, the Secondary Education track had no outcomes for teaching and the outcomes for Actuarial Science did not emphasize the use of statistics.

Process

The Department held three meetings to revise the PSLOs for each track. Department faculty who regularly teach courses within the specific track led the discussion on the respective PSLOs.

During these meetings, the faculty designated which major courses satisfied the PSLOs, along with the assessment method(s) that would be used. Additionally, the faculty agreed to specify on course syllabi the Department Mission, the PSLOs, the outcome(s) specifically addressed by the respective course, and the assessment method(s).

Pure Math

The Department began with the PSLOs for Pure Math, since this track has the most overlap of courses and content with the other two tracks.

The faculty agreed on four outcomes.

PSLO 1	Students will demonstrate the ability to solve a variety of problems in mathematics including calculus, probability and statistics, and linear algebra.
PSLO 2	Students will demonstrate the ability to write mathematical proofs and solve challenging problems both pure and applied.
PSLO 3	Students will demonstrate the ability to communicate mathematics both orally and in writing.
PSLO 4	Students will demonstrate the ability to identify and utilize the appropriate practices and tools, including the use of technology, to solve mathematics problems.

Actuarial Science

The general outcomes for Actuarial Science were the same as Pure Math. However, the wording on both PSLO 3 and PSLO 4 was adjusted to indicate a statistical emphasis.

PSLO 3	Students will demonstrate the ability to communicate mathematics <i>and statistical results</i> both orally and in writing.
PSLO 4	Students will demonstrate the ability to identify and utilize the appropriate practices and tools, including the use of technology, to solve mathematics problems <i>and perform statistical modeling and analysis of data</i> .

Secondary Education

For Secondary Education, the topic of *geometry* was included in PSLO 1. Additionally, the faculty developed three PSLOs to address the pedagogical component of the major.

PSLO 5	Students will demonstrate that they can apply appropriate mathematical practices and tools, including the use of technology, to teaching mathematical concepts, thinking, and content appropriate for secondary students.
PSLO 6	Students will demonstrate the ability to work collaboratively and persistently with peers to solve mathematics problems to develop learner-centered instruction.
PSLO 7	Students will demonstrate the ability to work collaboratively and persistently with peers to solve mathematics problems to develop learner-centered instruction.