

# Student Learning Outcomes

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To be accredited the Western Association of Schools and Colleges (WASC) now requires that a college must be instituting an assessment process with student learning outcomes. WASC will expect a college over time to create student learning outcomes (SLOs) for each course. A college should have a plan to measure these student learning outcomes, analyze and discuss the results of the measurements. The purpose of these discussions is to inform changes in courses and programs to improve student performance and thereby the education and training the college offers. Although WASC does not require or expect that all courses be assessed in this way immediately, a college should have a process in place so that in the fullness of time the assessment process involving student learning outcomes will permeate the instructional plan and activities of the college.

For a mathematics department at a college undergoing accreditation, at least one course should have student learning outcomes, a process for creating measures of those outcomes, and a plan to apply, analyze, study, and use these measures to change instruction (sequencing, content, and/or pedagogy) to improve student learning and performance. A central idea in this process is that change should be based on evidence and the evidence should be related to what we want our students to learn.

To give an idea of what this might entail, several student learning outcomes are given below with a discussion of possible measurement approaches for an Elementary or Intermediate Algebra course.

- ◆ Students will apply mathematical thinking to solve real world problems.
- ◆ Students will justify that the solution to an equation is correct by supplying reasons for each step in a solution to a linear, quadratic, or rational equation.
- ◆ Students will verify that numerical answers with units are reasonable and correct.

- ◆ Students will demonstrate persistence in solving real world problems.
- ◆ Students will reflect on how they learn mathematics

## Note:

These are possible student learning outcomes; they are not given as exemplars of good student learning outcomes. You might wish to rework these outcomes or come up with your own. What follows gives some suggestions as to what measures might look like and what issues might arise.

At first blush, we might think that we are doing this already with our final examinations. We should, however, remember that we are not evaluating each individual student to punish or reward with the appropriate grade but rather assessing how well our instructional program works so that we can improve the effectiveness of what we do. So every section of a course should be assessed in the same way with part of the final exam perhaps or perhaps with a portfolio of work from some subset of all the students in a course. We might even have graduate students from a nearby university interview our students as part of the measurement process for the given student learning outcomes. The creation and use of these students learning outcomes may take time, but it will not be difficult. What we may find difficult and uncomfortable is sitting down together as a department with section-by-section measurement data, analyzing the data, and then discussing what we are doing well and what we can improve in our instructional program. The data analysis should not be used to evaluate instructors, but rather to improve the performance of our students. We all know that a course in a given semester varies from section to section. Some sections are by chance "good" sections, some less so. With this in mind, creating a culture of evidence where data is collected, analyzed, and acted upon is something that we might all welcome.

## WASC (ACCJC) Accreditation Standards Glossary

**Assessment**— Methods that an institution employs to gather evidence and evaluate quality.

(See Student Learning Outcomes, page 14)