

CRITERIA 1: Describe an overarching outcome rather than something minute; global in scope.

There are many different ways to write learning outcomes depending on the needs of your course or program. Open or closed outcomes can be used as a reference to building learning outcomes that are effective and worthwhile. The goal is to think long-term: end of semester or life-long learning. A short term goal (exit standard) CAN be a learning outcome if immediate performance is required. Below are definitions and examples.

<p>OPEN: Describes a specific skill with a difference in outcome quality-production can be different.</p> <p>Examples —————></p>	<p>1. <i>Students graduating with a Spanish degree will be able to demonstrate oral fluency in basic Spanish.</i></p>	<p>2. <i>Students will be able to demonstrate competence and the ability to apply engineering principles.</i></p>	<p>3. <i>Students will be able to prepare a Student Education Plan.</i></p>
<p>CLOSED: Knowledge or accomplished based-achieved the same way.</p> <p>Examples —————></p>	<p>1. <i>Students graduating with a Spanish degree will pass the oral exam with a 90% or better.</i></p>	<p>2. <i>Students will be able to score over 95% on a locally developed examination on engineering.</i></p>	<p>3. <i>Students will be able to complete a Student Educational Plan for transfer to a four year institution.</i></p>
<p>LONG-TERM: describes the over-reaching outcome. The “BIG” picture-Learning Outcome</p> <p>Examples —————></p>	<p>1. <i>Perform operations on real numbers and algebraic expressions.</i></p>	<p>2. <i>Apply and follow the mathematical principles, operations and strategies to write, solve, graph, and interpret linear equations.</i></p>	<p>3. <i>Solve application problems by using critical thinking</i></p>
<p>SHORT TERM: describes minute skills, abilities or knowledge-Exit Standards</p> <p>Examples —————></p>	<p>1. <i>Use the fundamental operations to solve problems involving integers and polynomials.</i></p>	<p>2. <i>Set up and solve application problems using linear equations and inequalities in one variable.</i></p>	<p>3. <i>Graph linear equations and inequalities in two variables on a rectangular coordinate system.</i></p>

CRITERIA 2: Describes knowledge or skills that students will use beyond the end of the course or the program.

1. PLOs are the knowledge, skills, abilities and attitudes students should possess when they graduate from a program.
2. SLOs are the knowledge, skills, abilities and attitudes students should possess when they complete a course.

Learning Outcomes answer the question:

What should program graduates/students know and be able to do at the time of program/course completion and/or beyond.

When thinking about learning outcomes, it might be helpful to consider where students should be within two to three years of graduation/transfer or what will be gained during a course.

Should they be practitioners in the profession of the discipline?

Should they have entered the work force prepared for entry-level jobs?

Should they be in a graduate or professional degree program?

Should they have passed a licensure or certification exam in the field?

Should they possess knowledge or skills for the next levels of courses?

Should they possess knowledge relating to life-skills?

Should they demonstrate a particular skill or ability within a short time frame?

Closed Learning Outcome

Students will be able to score over 95% on a locally developed examination on engineering.

Open Learning Outcome

Students will be able to demonstrate competence and the ability to apply engineering principles.

CRITERIA 3: Describes an outcome that can be assessed using an indirect or direct assessment method.

Learning Outcomes should be stated so the outcome can be measured by more than one assessment method. The statement should not impose restrictions on the type or number of assessment methods that can be used to evaluate the outcome.

Remember, an SLO can be a PLO and vice versa.

Closed Learning Outcome

Students graduating with a Spanish degree will pass the oral exam with a 90% or better.

Open Learning Outcome

Students graduating with a Spanish degree will be able to demonstrate oral fluency in basic Spanish.

Please see appendix 1 for examples of assessment methods.

Criteria 4: Use of action verbs that describe thinking skills requiring application and/or critical thinking.

Given that learning outcomes focus on observable and measurable actions performed by students, the selection of an action verb for each outcome is crucial. Determining the best verb to use in a learning outcome can be challenging because of its need to accurately reflect the knowledge, skills and abilities being studied.

Certain verbs are unclear and subject to different interpretations in terms of what action they are specifying. Verbs/verb phrases such as know, become aware of, appreciate, learn, understand, and become familiar with should be avoided; they frequently denote behavior that is not easily observed or measured.

Please see appendix 2 for examples of action verbs.

Appendix 1-Examples of Assessment Methods

Capstone Courses: could be a senior seminar or designated assessment course. Program learning outcomes can be integrated into assignments.

Case Studies: involve a systematic inquiry into a specific phenomenon, e.g. individual, event, program, or process. Data are collected via multiple methods often utilizing both qualitative and quantitative approaches.

Classroom Assessment: is often designed for individual faculty who wish to improve their teaching of a specific course. Data collected can be analyzed to assess student learning outcomes for a program.

Collective Portfolios: Faculty assemble samples of student work from various classes and use the "collective" to assess specific program learning outcomes. Portfolios can be assessed by using scoring rubrics; expectations should be clarified before portfolios are examined.

Content Analysis: is a procedure that categorizes the content of written documents. The analysis begins with identifying the unit of observation, such as a word, phrase, or concept, and then creating meaningful categories to which each item can be assigned. The number of incidents that a responses occurs can then be quantified and compared with neutral or negative responses addressing the same category.

Embedded Questions to Assignments: Questions related to program learning outcomes are embedded within course exams. For example, all sections of "research methods" could include a question or set of questions relating to your program learning outcomes. Faculty score and grade the exams as usual and then copy exam questions that are linked to the program learning outcomes for analysis. The findings are reported in the aggregate.

Locally developed exams with objective questions: Faculty create an objective exam that is aligned with program learning outcomes. Performance expectations should be made explicit prior to obtaining results.

Matrices: are used to summarize the relationship between program objectives and courses, course assignments, or course syllabus objectives to examine congruence and to ensure that all objectives have been sufficiently structured into the curriculum.

Observations: can be of any social phenomenon, such as student presentations, students working in the library, or interactions at student help desks. Observations can be recorded as a narrative or in a highly structured format, such as a checklist, and they should be focused on specific program objectives.

Primary Trait Analysis: is a process of scoring student assignments by defining the primary traits that will be assessed, and then applying a scoring rubric for each trait.

Exit Interviews: Students leaving the university, generally graduating students are interviewed or surveyed to obtain feedback. Data obtained can address strengths and weaknesses of an institution or program and or to assess relevant concepts, theories or skills.

Focus Groups: are a series of carefully planned discussions among homogeneous groups of 6-10 respondents who are asked a carefully constructed series of open-ended questions about their beliefs, attitudes, and experiences. The session is typically recorded and later the recording is transcribed for analysis. The data is studied for major issues and reoccurring themes along with representative comments.

Interviews: are conversations or direct questioning with an individual or group of people. The interviews can be conducted in person or on the telephone. The length of an interview can vary from 20 minutes to over an hour. Interviewers should be trained to follow agreed-upon procedures (protocols).

Locally developed essay questions: Faculty develop essay questions that align with program learning outcomes. Performance expectations should be made explicit prior to obtaining results.

Reflective Essays: generally are brief (five to ten minute) essays on topics related to identified learning outcomes, although they may be longer when assigned as homework. Students are asked to reflect on a selected issue. Content analysis is used to analyze results.

Scoring Rubrics: can be used to holistically score any product or performance such as essays, portfolios, recitals, oral exams, research reports, etc. A detailed scoring rubric that delineates criteria used to discriminate among levels is developed and used for scoring. Generally two raters are used to review each product and a third rater is employed to resolve discrepancies.

Standardized Achievement and Self-Report Tests: Select standardized tests that are aligned to your specific program learning outcomes. Score, compile, and analyze data. Develop local norms to track achievement across time and use national norms to see how your students compare to those on other campuses.

Surveys: are commonly used with open-ended and closed-ended questions. Closed ended questions require respondents to answer the question from a provided list of responses. Typically, the list is a progressive scale ranging from low to high, or strongly agree to strongly disagree.

Transcript Analysis: are examined to see if students followed expected enrollment patterns or to examine specific research questions, such as to explore differences between transfer and freshmen enrolled students.

METHODS OF ASSESSMENTS Source: Allen, Mary; Noel, Richard, C.; Rienzi, Beth, M.; and McMillin, Daniel, J. (2002). Outcomes Assessment Handbook. California State University, Institute for Teaching and Learning, Long Beach, CA

Appendix 2

Bloom's Taxonomy can be a useful resource in developing learning outcomes. The following are action verbs that can be used for various levels of cognitive, affective, and psychomotor learning.

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Acquire	Associate	Add	Analyze	Categorize	Appraise
Attend	Compute	Apply	Arrange	Combine	Assess
Count	Convert	Calculate	Breakdown	Compile	Compare
Define	Defend	Change	Combine	Compose	Conclude
Describe	Discuss	Classify	Design	Create	Contrast
Draw	Distinguish	Complete	Detect	Drive	Criticize
Identify	Estimate	Compute	Develop	Design	Critique
Labels	Explain	Demonstrate	Diagram	Devise	Determine
List	Extend	Discover	Differentiate	Explain	Grade
Match	Extrapolate	Divide	Discriminate	Generate	Interpret
Name	Generalize	Examine	Illustrate	Group	Judge
Outlines	Give examples	Graph	Infer	Integrate	Justify
Point	Infer	Interpolate	Outline	Modify	Measure
Quote	Paraphrase	Manipulate	Point out	Order	Rank
Read	Predict	Modify	Relate	Organize	Rate
Recall	Rewrite	Operate	Select	Plan	Support
Recite	Summarize	Prepare	Separate	Prescribe	Test
Recognize		Produce	Subdivide	Propose	
Record		Show	Utilize	Rearrange	
Repeat		Solve		Reconstruct	
Reproduces		Subtract		Related	
Selects		Translate		Reorganize	
State		Use		Revise	
Write				Rewrite	
				Summarize	
				Transform	
				Specify	