Developing Academic Assessment Plans

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Continuous Quality Enhancement

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Program Mission, Student Learning Outcomes, and Measures

Purpose

The purpose of this document is to provide guidance for the development of Academic Assessment Plans for the 2017-2018 academic year at Oklahoma Baptist University (OBU). It defines the minimum information that must be included in an Academic Assessment Plan, which will be entered into WEAVE.

The deadline for creation of Academic Assessment Plans for the 2017-2018 academic year is June 1, 2017.

Introduction

Because teaching is a primary mission of OBU, evidence of student learning is a measure of our success as an educational institution. Regional accrediting agencies across the United States require that universities provide evidence of student learning and program improvement to demonstrate their effectiveness as educational institutions.[1] *Student Learning Outcomes* (SLOs) specify what students will know and be able to do as a result of completing their degree programs. Student Learning Outcomes (a) are consistent with the mission of the university, college, and department, and (b) align with the values of the faculty.

Under the umbrella of OBU's mission, each academic program should have a mission that is distinct but supports the mission of the institution. This mission should be succinct [i.e., one sentence or two] and define how a particular academic program fits into the university's purpose. It should answer the question: "Why does OBU offer this degree?"

Student Learning Outcomes serve to describe how the program mission is implemented. Each academic program has a mission, and the SLOs form a blueprint of how the key principles of the program mission are met. A SLO should represent one aspect of what a graduate of a program will know, be able to do, or what attributes that individual will have.

SLOs are reviewed annually and revised periodically in response to faculty review of outcome and goal data. This document provides guidelines for developing goals and outcomes for academic programs.

Each SLO will be demonstrated by evidence from one or more *measure*. A measure is a documented survey, interview, assignment, quiz, performance, or other assessment tool that faculty have selected for this purpose. One measure may provide evidence for multiple SLOs.

A *target* is a numerical value expressed as a percentage that will be used to indicate a SLO has been achieved in a program. For example, "75% of students will achieve a 'satisfactory' or better on a critical interaction paper in HIS3110." The measure is the critical interaction paper in a particular course, the target is the percent that will represent success.

[1] The requirement for regular assessment of Student Learning Outcomes and the use of those assessments for improving student learning is one of the Core Components of the HLC's Criteria for Accreditation. See: https://www.hlcommission.org/Criteria-Eligibility-and-Candidacy/criteria-and-core-components.html

What Constitutes a Program?

For the purposes of Academic Assessment at OBU, a program is a major or concentration within a college and/or degree. Each distinct major or concentration will require a separate Academic Assessment Plan. If a major or concentration has multiple emphases, only ONE plan will be required that evaluates all emphases within that major or concentration.

Majors or concentrations that share similar course components [e.g., Psychology and Psychology: Pre-Counseling] will require separate Academic Assessment Plans. However, they may share SLOs, measures, and have verbatim agreement in portions of the Academic Assessment Plan between the two programs that represent shared components. There must be some distinct attributes of the Academic Assessment Plans of related programs to reflect the differences between the majors or concentrations.

An *emphasis* that represents a different set of selectives within a major or concentration does not require a separate Academic Assessment Plan. However, the measures used to evaluate the SLOs should not rely on courses or artifacts unique to only some of the emphases within a major or concentration.

Academic certificates (e.g, those that are comprised of courses taken for college credit) are considered programs. However, if the certificate entirely overlaps with an emphasis in another program, a SLO assessing the emphasis in the program can be used to assess the entire certificate. (E.g., the Certificate in Global Nursing consists of the required specialized courses in the MSN, Global Nursing degree.)

Identifying a Program Mission

Each degree program on campus exists for a distinct purpose and has a unique relationship to the mission of the University. All units on campus should have a mission statement that describes the purpose of the unit and guides the unit's actions, spells out its overall goal, provides a sense of direction, and guides decision-making. The program mission should consist of one or two sentences that **summarize** why the program exists and how it relates to the mission of the University.

This program mission should meet these criteria:

- Clarity – the mission is clear, concise, and addresses teaching, research, and service
- Alignment with the university mission – the unit mission clearly supports the University mission

An example mission statement: "The Reactor Engineering program exists to prepare students for careers in design and operation of commercial nuclear powers. The program provides students with current knowledge of Nuclear Reactor design and equips them to use their knowledge and talents to serve Christ through their vocations."

Educational Goals

The top level in the assessment hierarchy in WEAVE are the "Goals." Beginning in the 2016-17 academic year, each program at OBU is being asked to link their program specific SLOs (see below) with the educational goals at the undergraduate or graduate level. Those goals are available online.

The person who does WEAVE data entry for each program should do the following:

a. Identify whether the program is at the graduate or undergraduate level.
b. Add the appropriate educational goals to WEAVE (these are available on the OBU website).
c. After the SLOs are created for the program, link each SLO to at least one of the educational goals. Goals may be linked to multiple SLOs and SLOs may be linked to multiple Goals. The intention is to demonstrate representative, not exhaustive linkages. (Therefore, only clear links need to be included.)

Rather than attempt to do another layer of assessment to evaluate completion of our educational goals at the University level, linking program SLOs to the appropriate level of educational goals provides a means of demonstrating that we are pursuing and assessing our overarching educational goals.

Developing Student Learning Outcomes

The Three R's of SLOs: Recent, Relevant, and Rigorous

Student Learning Outcomes reflect the curriculum, and as curriculum evolves, learning outcomes change. SLOs should be recent, relevant, and rigorous. *Recent* outcomes reflect current knowledge and practice in the discipline. *Relevant* outcomes relate logically and significantly to the discipline. *Rigorous* outcomes require an appropriate degree of academic precision and thoroughness to be met successfully.

Outputs and Outcomes: What is the difference?

Outputs describe and count what we do and whom we reach and represent products or services we produce. Processes deliver outputs; what is produced at the end of a process is an output. For example, in a PhD student recruitment process the output might be 10 new PhD students. At the end of a degree program, the output might be a certain number of graduates.

An **outcome** is a level of performance or achievement. It may be associated with a process or its output.

Outcomes imply measurement - quantification - of performance. Here are two examples:

1. Students analyze experimental data and interpret results in the cellular and molecular sciences.
2. Students discriminate musical quality based on sound musical reasoning. These outcomes describe student learning that is observable and measureable through assessment.

This distinction is important, especially in the development and review of Student Learning Outcomes. We seek to measure outcomes as well as their associated outputs; however, *SLOs focus on outcomes*. For example, while we produce a number of new graduates (the output), it is important to have a measure of the *quality* of the graduates as defined by the college or discipline (the outcome). Effective Student Learning Outcomes describe, in measurable terms, these quality characteristics by defining our expectations for knowledge, critical thinking, and communication for OBU graduates.

Components of Effective Student Learning Outcomes

Effective SLOs:

1. *Focus on what students will know and be able to do.* All disciplines have a body of core knowledge that students must learn to be successful as well as a core set of applications of that knowledge in professional settings. Effective knowledge SLOs begin with phrases such as "Students describe….", "Students identify…" or similar verbs that specify a behavior that indicates knowledge acquisition.

When writing SLOs that focus on what students are able to do as a result of the program, select a verb that best describes the action involved in the observed behavior. A guiding question is: what cognitive processes or skills do students engage when demonstrating the behavior? For example, "Students analyze…", "Students evaluate…" or similar verbs that specifically describe the behavior expected (see Table 3 for a more thorough list of verbs associated with Bloom's Taxonomy).

2. *Describe observable and measureable actions or behaviors.* Effective SLOs present a core set of observable, measureable behaviors. Measurement tools vary from quizzes and tests to complex rubrics. There are some verbs to be avoided when writing SLOs, because they designate behaviors that are internal and not observable. Here is a list of verbs and phrases to avoid:

- Understand
- Appreciate
- Become familiar with
- Learn about, think about
- Become aware of, gain an awareness of
- Demonstrate the ability to

Bloom's Taxonomy (Anderson, et al., 2001) is a widely accepted description of the dimensions of knowledge and cognitive skills that are used to formulate educational objectives. Student Learning Outcomes are the educational objectives of OBU degree programs, so this taxonomy provides a valuable resource in developing measureable SLOs. Table 1 presents the Knowledge dimension levels and their descriptions. Table 2 presents the Cognitive dimension and the six levels of the hierarchy and their descriptions. Table 3 presents a list of specific verbs that engage students in processes that are observable and measurable.

SLOs for graduate level programs should be consistently at the top end of Bloom's taxonomy and should avoid lower cognitive verbs. This is a large part of developing and maintaining a graduate culture at OBU.

Recommended Steps for Developing and Revising Student Learning Outcomes

1. Review the current SLOs for your area with your program faculty.
2. Examine the SLOs for the Knowledge Type (see Table 1) and Cognitive Processes level (see Table 2) they engage. The majority of the SLOs should be in the upper three levels of the Cognitive Processes Dimension – Analyze, Evaluate, and Create. The Taxonomy template in Figure 1 may help with this process.
3. Cross-reference your SLOs with the list of verbs/actions associated with their corresponding cognitive dimension levels (see Table 3), and replace any "verbs and phrases to avoid" (see the above list) with appropriate verbs from Table 3.
4. Write the SLO concisely and clearly.

Establishing Measures and Targets

Each SLO must have one or more *measure* that will demonstrate satisfaction of that outcome. A measure must be associated with a course or courses that *all* students in a program must complete. The measure should be taken at a point that the faculty reasonably expects mastery of the SLO to have been attained (i.e., avoid using assignments from introductory courses as the summative assessment SLOs).

While choosing the course and assignment that will be used to measure the SLO, the faculty should select a rubric that will be used to evaluate the measure. It should show what "good" looks like. Often it is helpful to include this rubric with the syllabus so that students are aware of the expectations. Rubrics should typically be on a matrix with three five attributes and four or five quality descriptions. (Examples of rubrics that can be obtained at no charge and are nationally recognized can be found at: http://www.aacu.org/value-rubrics. These rubrics may be downloaded and modified to fit specific assignments.) If a quiz or exam is used to measure successful completion of a SLO, then no rubric is required.

Once the rubric is created the faculty should choose a *target* that defines success for the SLO. Targets should be selected so that a single student's poor performance on an assignment does not prevent overall program success. Targets should also be sufficiently challenging. At no point should a target indicate that less than 70% of students being satisfactory according to the assigned measure is acceptable. A typical target will require 75% to 85% of students to be "satisfactory" on an assignment. Course grades or raw assignment grades are not normally used as targets unless an approved rubric is used as the grading criteria.

Data Entry for WEAVE

A separate "how-to" guide will be distributed with specific instructions for WEAVE. The minimum elements that are **required** to be entered into WEAVE for each program are:

1. Mission/Purpose: One or two sentences that define the program and show how it relates to the University's mission.
2. Outcome/Objectives: Three to five SLOs that reflect *some* of the key attributes a graduate of the given program will possess.
3. Measures & Findings: Each SLO must have one or more assignments, exams, or other instruments that provide evidence of the students' achievement of a SLO.
4. Target: Each Measure should have a Target that clearly indicates what defines success.

Support

The Director of Assessment and Institutional Research is available for assistance with training on how to develop/revise Program Missions, Student Learning Outcomes, and Measures and Targets. Please contact Spence Spencer at andrew.spencer@okbu.edu or 585-4102.

Table 1. The Knowledge Dimension – Bloom's Revised Taxonomy

Major Types and Subtypes	Examples
A. Factual Knowledge – The basic elements students must know to be acquainted with a discipline or solve problems in it	
AA. Knowledge of terminology	Technical vocabulary, music symbols
AB. Knowledge of specific details and elements	Major natural resources, reliable sources of information
B. Conceptual Knowledge – The interrelationships among the basic elements within a larger structure that enable them to function together	
BA. Knowledge of classifications and categories	Periods of geological time, forms of business ownership
BB. Knowledge of principles and generalizations	Pythagorean theorem, law of supply and demand
BC. Knowledge of theories, models, and structures	Theory of evolution, structure of Congress
C. Procedural Knowledge – How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods	
CA. Knowledge of subject-specific skills and algorithms	Skills used in painting with water colors, whole-number division algorithm
CB. Knowledge of subject-specific techniques and methods	Interviewing techniques, scientific method
CC. Knowledge of criteria for determining when to use appropriate procedures	Criteria used to determine when to apply a procedure involving Newton's second law, criteria used to judge the feasibility of using a particular method to estimate business costs
D. Metacognitive Knowledge – Knowledge of cognition in general as well as awareness and knowledge of one's own cognition	
DA. Strategic knowledge	Knowledge of outlining as a means of capturing the structure of a unit of subject matter in a textbook, knowledge of the use of heuristics
DB. Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge	Knowledge of the types of tests particular teachers administer, knowledge of the cognitive demands of different tasks
DC. Self-knowledge	Knowledge that critiquing essays is a personal strength, whereas writing essays is a personal weakness; awareness of one's own knowledge level

From: Anderson, Krathwohl, Airasian, Cruikshank, Mayer, & Pintrich, 2001.

Table 2. The Cognitive Process Dimension – Bloom's Revised Taxonomy

Categories & Cognitive Processes	Alternative Names	Definitions and Examples
1. Remember – Retrieve relevant knowledge from long-term memory		
1.1 Recognition	Identifying	Locating knowledge in long-term memory that is consistent with presented material (e.g., Recognize the dates of important events in U.S. history)
1.2 Recalling	Retrieving	Retrieving relevant knowledge from long-term memory (e.g., Recall the dates of important events in U.S. history)
2. Understand – Construct meaning from instructional messages, including oral, written, and graphic communication		
2.1 Interpreting	Clarifying, paraphrasing, representing, translating	Changing from one form of representation (e.g., numerical) to another (e.g., verbal) (e.g., Paraphrase important speeches and documents)
2.2 Exemplifying	Illustrating, instantiating	Finding a specific example or illustration of a concept or principle (e.g., Give examples of various artistic painting styles)
2.3 Classifying	Categorizing, subsuming	Determining that something belongs to a category (e.g., concept or principle) (e.g., Classify observed or described cases of mental disorders)
2.4 Summarizing	Abstracting, generalizing	Abstracting a general theme or major point(s) (e.g., Write a short summary of the events portrayed on a videotape)
2.5 Inferring	Concluding, extrapolating, interpolating, predicting	Drawing a logical conclusion from presented information (e.g., In learning a foreign language, infer grammatical principles from examples)
2.6 Comparing	Contrasting, mapping, matching	Detecting correspondences between two ideas, object, and the like (e.g., Compare historical events to contemporary situations)
2.7 Explaining	Constructing models	Constructing a cause-and-effect model of a system (e.g., Explain the causes of important 18th-century events in France)
3. Apply – Carry out or use a procedure in a given situation		
3.1 Executing	Carrying out	Applying a procedure to a familiar task (e.g., Divide one whole number by another whole number, both with multiple digits)
3.2 Implementing	Using	Applying a procedure to an unfamiliar task (e.g., Use Newton's Second Law in situations in which it is appropriate)

Table 2, Continued

Categories & Cognitive Processes	Alternative Names	Definitions and Examples
4. Analyze – Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose		
4.1 Differentiating	Discriminating, distinguishing, focusing, selecting	Distinguishing relevant from irrelevant parts or important from unimportant parts of presented material (e.g., Distinguish between relevant and irrelevant numbers in a mathematical word problem)
4.2 Organizing	Finding, coherence, integrating, outlining, parsing, structuring	Determining how elements fit or function within a structure (e.g., Structure evidence in a historical description into evidence for and against a particular historical explanation)
4.3 Attributing	Deconstructing	Determine a point of view, bias, values, or intent underlying presented material (e.g., Determine the point of view of the author of an essay in terms of his or her political perspective)
5. Evaluate – Make judgments based on criteria and standards		
5.1 Checking	Coordinating, detecting, monitoring, testing	Detecting inconsistencies or fallacies within a process or product; determining whether a process or product has internal consistency; detecting the effectiveness of a procedure as it is being implemented (e.g., Determine if a scientist's conclusions follow from observed data)
5.2 Critiquing	Judging	Detecting inconsistencies between a product and external criteria, determining whether a product has external consistency; detecting the appropriateness of a procedure for a given problem (e.g., Judge which of two methods is the best way to solve a given problem)
6. Create – Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure		
6.1 Generating	Hypothesizing	Coming up with alternative hypotheses based on criteria (e.g., Generate hypotheses to account for an observed phenomenon)
6.2 Planning	Designing	Devising a procedure for accomplishing some task (e.g., Plan a research paper on a given historical topic)
6.3 Producing	Constructing	Inventing a product (e.g., Build habitats for a specific purpose)

From: Anderson, Krathwohl, Airasian, Cruikshank, Mayer, & Pintrich, 2001.

Table 3. Verbs for Bloom's Taxonomy

Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Arrange	Classify	Calculate	Combine	Appraise	Arrange
Define	Describe	Construct	Figure	Argue	Assemble
Locate	Identify	Demonstrate	Find	Assess	Compose
Recall	Indicate	Estimate	Sketch	Defend	Create
Recite	Organize	Illustrate	Solve	Estimate	Design
Describe	Interpret	Interpret	Predict	Judge	Devise
Repeat	Illustrate	Appraise	Change	Predict	Formulate
Identify	Reorganize	Contrast	Survey	Qualify	Invent
Select	Translate	Criticize	Compare	Rate	Manage
Quote	Paraphrase	Diagnose	Diagram	Support	Modify
Label	Summarize	Identify	Examine	Critique	Organize
Copy	Transform	Classify	Test	Recommend	Plan
List	Discuss		Modify		Prepare
Name	Explain				Produce
State	Defend				Propose
	Compare				Set up
	Report				Verify
	Restate				Construct
	Review				Develop
	Rewrite				

From: The Eberly Center for Teaching Excellence, Carnegie Mellon University (Carnegie Mellon University, n.d.)

Figure 1. The Taxonomy Table

The Knowledge Dimension	The Cognitive Process Dimension					
	Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Factual Knowledge						
Conceptual Knowledge						
Procedural Knowledge						
Meta-Cognitive Knowledge						

From: Anderson, Krathwohl, Airasian, Cruikshank, Mayer, & Pintrich, 2001.

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