Student Learning Outcome Development Guide for the Core Outcomes Project

What is a Student Learning Outcome and what should it look like?

"Learning outcomes specify observable, measurable actions that students will be able to perform upon successful completion of a course. Each learning outcome should incorporate an action verb associated with one of the cognitive processes of the Revised Bloom's Taxonomy."

How to Write Student Learning Outcomes

Creating student learning outcomes for the Kansas Core Outcomes Project is a process. Some programs have found the following steps to be helpful:

Step 1: Selecting Essential Learning Outcomes

Start by having a faculty/staff brainstorm about what a student should know, understand, and be able to do upon successful completion of the course in question.

Before writing or revising student learning outcomes, you might try a few of the following.

- Have some open discussion sessions on one of the following topics or something similar.
  - Describe the course goals. Specifically focus on strengths, skills, and values that you feel are the result of, or at least supported and nurtured by, the course experience. Then ask:
    - What does this student know?
    - What can this student do?
    - What does this student care about?
  - List the achievements you implicitly expect students to be able to achieve.
- Collect and review instructional materials. Try sorting materials into 3 broad categories: recognition/recall, comprehension/simple application, critical thinking/problem-solving. Use any of the following:
  - syllabi and course outlines
  - course assignments and tests
  - textbooks (especially the tables of contents, introductions, and summaries)
- Review and react to student learning objectives from other college/universities. Try grouping the statements into broad categories of student outcomes (i.e., knowledge, attitudinal, behavioral).

Step 2: Refining the Student Learning Outcome Statements

Learning outcomes are statements of what is expected that a student will be able to DO as a result of a learning activity. By way of example:

> On completion of this course, students will be able to:
> 1. Access INFOMAP on the PCs in the Computer Based Learning Laboratory and load data into it from a file.
> 2. Use the MAP routine to draw and print a dot map and give a verbal description of the pattern revealed.
> 3. Use the spreadsheet facilities within the DATA module to compute a simple nearest neighbor test of complete spatial randomness.
> 4. Use the ANALYSIS routine provided to estimate a K function of nearest neighbor distances.
> 5. Do a kernel density estimation transformation of the point data into a continuous surface of densities.

Student learning outcomes for a course may encompass levels of learning from acquisition of facts to the ability to think critically and solve problems. Each statement of a student learning outcome must include a **VERB** that represents the level of learning that is expected. The following is a list of verbs for use when creating student learning outcome statements:

To measure ***remembering:*** Retrieving, recognizing, and recalling relevant knowledge from long-term memory. (common terms, facts, principles, procedures), ask these kinds of questions: *Define, Describe, Identify, Label, List, Match, Name, Outline, Reproduce, Select, State*.

To measure ***understanding:*** Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining (understanding of facts and principles, interpretation of material), ask these kinds of questions: *Convert, Defend, Distinguish, Estimate, Explain, Extend, Generalize, Give examples, Infer, Predict, Summarize*.

To measure ***applying:*** Carrying out or using a procedure through executing, or implementing. (solving problems, applying concepts and principles to new situations), ask these kinds of questions: *Demonstrate, Modify, Operate, Prepare, Produce, Relate, Show, Solve, Use*.

To measure ***analyzing:*** Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing. (recognition of unstated assumptions or logical fallacies, ability to distinguish between facts and inferences), ask these kinds of questions: *Diagram, Differentiate, Distinguish, Illustrate, Infer, Point out, Relate, Select, Separate, Subdivide*.

To measure ***evaluating:*** Making judgments based on criteria and standards through checking and critiquing. (judging and assessing), ask these kinds of questions:

Appraise, Compare, Conclude, Contrast, Criticize, Describe, Discriminate, Explain, Justify, Interpret, Support.

To measure ***creating:*** Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. (integrate learning from different areas or solve problems by creative thinking), ask these kinds of questions: *Categorize, Combine, Compile, Devise, Design, Explain, Generate, Organize, Plan, Rearrange, Reconstruct, Revise, Tell.*

Action Verb List – Suggested Verbs to Use in Each Level of Thinking Skills

Below is table of verbs that can be useful when creating student learning outcomes.

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

Consider how many student learning outcomes should be assessed. Decide what are the most important outcomes commonly expected across college/universities. I suggest 4 to 8 student learning outcomes.