Student Learning Outcomes: Good Practices

Student Learning Outcomes (SLOs)

- identify concrete skills and knowledge the students must develop and be able to apply upon completion of a course or program;
- are observable and measurable – can be demonstrated by a student in an assignment or project;
- should appear on all syllabi.

Examples

Student Learning Outcomes Action-oriented – *active verbs** Concrete, observable and measurable
The student will *analyze* experimental results and *draw reasonable conclusions* from them.
The student will effectively *evaluate* research designs, methods, and conclusions. The student will *collect, interpret, and analyze* financial data to support effective decision-making in corporate and investment environments.

*To articulate clear learning outcomes, concrete verbs such as *identify, distinguish, analyze,* or *construct* are more useful than vague or passive verbs (*understand, know, appreciate,* or *be exposed to*).

See Page 2 for a list of action verbs to help describe skills and knowledge in SLOs.

Good Practices with Concrete SLOs:

a) **Guide decisions about class activities, assignments, and exams**. *How do activities or assignments allow students to apply key skills and knowledge, get feedback about their work, and have opportunities to practice and improve?* Planning a course with concrete SLOs can help instructors design activities and assignments that build and reinforce key skills.

b) **Support assessment & feedback to help students improve.** Learning outcomes that are concrete and observable make it easier to communicate with students about the strengths and weaknesses of their work. Feedback to students can guide improvement of key skills during the semester (and across the curriculum).

c) **Inform students how to succeed.** Making the learning outcomes explicit – *what a student really needs to do in order to succeed* – promotes equal opportunity for all students. (Vague outcomes do not help individual students fill in gaps or misconceptions they have about the subject or about learning, and so may advantage the advantaged.) Include learning outcomes on all syllabi and key assignments.

d) **Support curriculum review and program assessment.** With concrete and observable SLOs in all courses, faculty can more effectively plan, assess and revise curriculum, providing a cohesive student experience for learning.

Writing Student Learning Outcomes (SLOs)

1. Writing or revising SLOs. SLOs should focus on an action verb and a concrete task involving core skills, knowledge, or applications.

Student	Action Verb	Content
The student will…	**design**	a phase I clinical trial.
The student will…	**analyze**	data from a phase II trial using appropriate statistical techniques.
The student will…	**explain**	the results of a phase II trial with appropriate rationale and links to current published literature.

Adapted from: Caffarella, Rosemary S. (2002). Designing Instructional Plans. In *Planning Programs for Adult Learners* (2nd ed., p. 170). San Francisco: Jossey-Bass.

2. Action verbs such as *identify, argue*, or *construct* help articulate concrete learning outcomes, while passive verbs (such as *understand* or *know* or *be exposed to*) are less clear. Below are action verbs frequently used for student learning objectives, based on Bloom's taxonomy.*

Create	*put elements together to form a coherent whole; re-organize elements into a new pattern or structure*	categorize, combine, compose, construct, create, devise, design, formulate, generate, hypothesize, invent, modify, organize, plan, perform, prepare, problem-solve, produce, rearrange, reconstruct, relate, reorganize, revise, rewrite, synthesize, summarize, write
Evaluate	*Make judgments based on criteria and standards*	appraise, argue, assess, compare, conclude, contrast, coordinate, criticize, decide, describe, detect, determine, discriminate, estimate, explain, evaluate, interpret, judge, rate, relate, revise, summarize, validate, value
Analyze	*break material down into its constituent parts and determine how the parts relate to each other and to an overall structure/ purpose*	analyze, appraise, break down, calculate, categorize, compare, contrast, debate, detect, deduce, determine, diagram, differentiate, discriminate, distinguish, examine, experiment, focus, infer, inspect, integrate, interpret, organize, outline, point out, question, relate, select, separate, sub-divide, test, translate
Apply	*use abstractions in concrete situations*	apply, change, choose, classify, compute, demonstrate, develop, discover, employ, execute, illustrate, infer, investigate, manipulate, modify, operate, organize, outline, practice, predict, prepare, produce, relate, restructure, show, solve, transfer, use
Understand	*show understanding of*	Clarify, classify, convert, describe, discuss, distinguish, estimate, explain, extend, find, generalize, give examples, give in own words, identify, illustrate, interpret, map, locate, paraphrase, read, rearrange, represent, restate, review, rewrite, summarize, translate
Remember or recall	*remember something previously encountered*	define, describe, identify, label, list match, name, outline, reproduce, select, state, recall, recognize, record

*Adapted from *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, 2001. Senior editors Anderson and Krathwohl. Addison, Wesley Longman Inc.