

Course Goals/Learning Outcomes

When writing goals, think in broad terms about what is to be taught or accomplished from the perspective of the teachers or instructors. Course goals or learning outcomes are broad statements of what the students will be able to do when they have completed a course. Generally these learning outcomes connect to the overall goals of the curriculum for a given discipline. Clarifying these larger ideas and making connections to the curriculum helps students see the purpose and relevance of the course content.

Example [from Block 1]: This course will provide a strong epidemiology and biostatistics foundation to support effective application in clinical practice and interpretation of the scientific literature. [Note how this is framed in terms of what the course will accomplish, not in terms of what learners will be able to accomplish after having completed the course.] Course goals are not learning objectives.

Learning Objectives

Learning objectives describe the behavior expected of students after instruction and are measurable. What would someone be doing when demonstrating mastery of the goal you have written above? Consider the following components: 1) audience, 2) performance or outcome, 3) conditions, 4) criterion.

Audience	The student will be able to....
Behavior/ Performance (obligatory)	What a learner is expected to be able to <i>do</i> . What is the learner doing when demonstrating achievement of the objective?
Condition (optional)	Identifies important conditions (if any) under which the performance is to occur
Criterion (optional)	Describes how well the learner must perform in order to be considered acceptable.

Example:

Audience	The student will....
Behavior	perform a venipuncture on a member of the class for microcrit determination
Condition	using standard equipment
Degree	within two tries.

CAML

Primer on Writing Effective Learning Objectives

More Examples:

1. When given an article from the literature, the student will be able to define the epidemiologic concepts of incidence and prevalence.
2. When given a research article, the student will identify and characterize strengths and weaknesses of epidemiologic research study design, including descriptive, case series, cohort, case control, and randomized controlled clinical trials, including potential biases and confounding factors with complete accuracy.
3. When given a research design, the student will apply epidemiological and biostatistical concepts (including probability, variation, significance testing, confidence intervals, and statistical power) to medical and population health scenarios, including critical analysis of scientific literature.

Pseudo-objectives (masquerading as objectives but they are flawed). Why? [Answer on page 4.]

1. Review guidelines from ASCO (American Society of Clinical Oncology) regarding use of molecular genetic testing in identifying at-risk family members.
2. Has a thorough understanding of genetics.
3. Demonstrates comprehension of biomedical ethics and principles that guide clinical practice.
4. Able to relate to others in demonstrating empathy.
5. Able to think critically and analytically.

VERBS FOR USE IN WRITING LEARNING OBJECTIVES

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				

References

1. Anderson, L.W., & Krathwohl (Eds.) *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman. 2001.
2. Bloom, B., Englehart, M. Furst, E., Hill, W., & Krathwohl, D. *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York, Toronto: Longmans, Green. 1956.
3. Mager RF. *Preparing Instructional Objectives*. 2nd Ed. Lake Publishing Co. Belmont, CA, 1984.

Answers to why Pseudo-objectives (masquerading as objectives) are flawed.

1. Describes what the teacher will do, not what the learner will do.
2. Too broad, not measureable.
3. Too broad, not measureable.
4. Doesn't describe the learner, the conditions, the criterion. Too broad.
5. Too broad and vague, doesn't describe the conditions or the learner.