

WRITING PROGRAM OBJECTIVES

The program objectives are a collection of words and/or diagrams that let students know what is to be achieved. Objectives are related to intended outcomes. Objectives must be specific and measurable rather than broad and intangible. Objectives should be measurable action statements of student learning after completing the program. Begin each objective with an action verb. Note that “understand” or “know” are not considered action verbs. All objectives must be approved by the CPE office before content is to be written.

Begin with: “Upon completion of this course, participants will be able to...”

Skill	Not Action Verb	Action Verb
Knowledge	Know, learn	Write, define, repeat, name, list
Comprehension	Understand, appreciate	Restate, discuss, describe, explain, review, locate
Application	Show, apply knowledge of	Operate, illustrate, use, employ, sketch
Analysis	Analyze	Appraise, calculate, test, compare, contract, solve, criticize
Evaluation	Show good judgment	Evaluate, rate, select, estimate, measure

Rubric for Assessing Topic Objectives

Good course objectives are specific, measurable, clear and inter-related. This rubric is designed for a self- or peer- review of topic objectives presented as learning objectives.

4 = Very Good, ready for distribution

2 = Fair, needs significant revision

3 = Good, some revisions suggested

1 = Poor, start over

Specific	Measurable	Clear	Related
4 Each objective is distinct from the others and highlights learning that will occur by the end of the course. Goals are distinct from others. The reader has a good idea about what is expected of students and why.	4 The objectives utilize only measurable, active verbs with no redundancy. Nonfunctional verbs are not present. The reader can map the objectives to various levels of skill on Bloom's Taxonomy of Objectives.	4 Taken together, the objectives present a very clear picture of course purpose and learning outcomes. The objectives present a set of actions that students will understand and could readily agree to.	4 Although distinct, the objectives provide a sense of how knowledge and meaningful learning will accrue in the course. There is a logical order to the objectives, e.g., higher-order objectives build upon lower-order objectives.
3 Most objectives are distinct, but one or two may have some overlap that can be eliminated with rewriting. The reader has a good idea about what is expected of students and why.	3 The objectives utilize many active verbs that are measurable and not redundant. Some verbs are nonfunctional, but most could be easily mapped to levels on Bloom's Taxonomy.	3 With one or two exceptions, the objectives present a clear picture of course purpose and outcomes. The objectives present a set of actions that students will understand and could readily agree to, although they may ask for a few clarifications.	3 Objectives provide a sense of how knowledge and meaningful learning will accrue in the course. Although one or two objectives don't quite fit into the larger picture, there is a logical order to the objectives, e.g., higher-order objectives build upon lower-order objectives.
2 There is a fair amount of overlap in objectives, and many are not specific enough to be distinguishable from the others or to give a sense of what the course is about. Significant rewriting needed.	2 The objectives utilize a mix of measurable and nonfunctional verbs, many of which could not easily be mapped to levels on an educational taxonomy. Significant rewriting needed.	2 Taken together, the objectives present a somewhat vague or confusing picture of course purpose and outcomes. Students will need more information for understanding and buy in.	2 The reader must exert some effort or guesswork to discern logic to the arrangement of the objectives, although the relation between some of them is explicit.
1 Course objectives are so broad and vague that one has no idea what this course is really about. The objectives could apply to almost any learning situation.	1 The objectives use few if any measurable verbs that could be mapped to levels on an educational taxonomy.	1 It is unclear what students would be doing in this course, or why. They would lack confidence in the purpose of the course.	1 Objectives seem to be unrelated and in random order. The reader would have no sense of how knowledge and learning will accrue.

Comments to writer:

Taxonomy Table

The Knowledge Dimension	The Cognitive Process Dimension					
	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
A. Factual Knowledge	Objective 3 Objective 4					
B. Conceptual Knowledge		Objective 1 Objective 2				
C. Procedural Knowledge			Objective 5 Objective 6 Objective 7			
D. Meta-Cognitive Knowledge				Objective 8 Objective 9 Objective 10		

Example Objectives:

1. Explain the rationale for testing radiopharmaceuticals for radiochemical purity.
2. Explain the principles of radiochemical purity testing using chromatography.
3. List types of stationary (solid) phase materials as well as the care, storage, and use of each.
4. List types of mobile (solvent) phase materials as well as care, storage, and use of each.
5. Explain proper strip preparation and labeling.
6. For commonly dispensed Tc-99m radiopharmaceuticals:
 1. Name the solid and mobile phases used in chromatography.
 2. List the expected location of anticipated radiochemical species on the solid phase including potential impurities found in Tc-99m labeled radiopharmaceuticals
 3. List the acceptable limits of labeled radiopharmaceutical for product release (both USP and in-house limits).
7. Calculate the percentage of the labeled (bound) radiopharmaceuticals.
8. List at least four procedural checks to be made when chromatography identifies a “failed” product.
9. Given a chromatographic scenario, hypothesize a logical explanation of events.
10. Explain the impact that substandard radiopharmaceuticals have on patient care.