

Active Learning Requirements

Examples of Active Learning Strategies:

- ## Learning Assessments

Learning Assessment Expectations by Activity Type:

- Knowledge-Based: Recall of facts; quizzes; knowledge checks
- Application-Based: Case studies requiring application of learned principles
- Practice-Based: Both formative and summative assessment, including demonstration of skill

[illegible]

Cognitive Levels: knowledge structure;
a sequence of progressive contextualization of material; levels of learning

Level	Definition	Associated Verbs			Example
Knowledge <i>Remembering</i> 1	Remembering, recalling, recognizing information, ideas and principles in the approximate form in which they were learned Recall information	Arrange Define Duplicate Label	Match Memorize Name Order	Recognize Recall Repeat Reproduce	-Name the major bone of the leg. -List five causes of joint pain. -Define "deep fascia".
Comprehension <i>Understanding</i> 2	Translates, comprehends or interprets information based on prior learning. Interpret information in one's own words.	Classify Describe Discuss Explain Identify	Indicate Locate Recognize Report Restate	Review Sort Tell Translate	-Explain the autoimmune mechanism. -Describe the process of differential diagnosis. -Given XYZ, compare and contrast Q and R as analytical modes.
Application <i>Applying</i> 2	Selects, transfers and uses data and principles to complete a problem or task with minimum of direction. Apply knowledge or generalize it to a new situation. Apply rules, laws, methods, theories.	Apply Choose Demonstrate Dramatize	Illustrate Interpret Operate Practice	Prepare Schedule Solve Use	-Use the chart to calculate the dose for a 40 kg child. -Apply genetic concept to determine potential outcomes in patients with XYZ disease.
Analysis <i>Analyzing</i> 3	Distinguishes, classifies and relates the assumptions, hypotheses, evidence or structure of a statement or questions. Break down knowledge into parts and whole relationship.	Analyze Appraise Calculate Categorize Compare Contrast	Criticize Diagram Differentiate Discriminate Distinguish	Examine Experiment Inventory Question Test	-Diagram the mechanism leading to shortness of breath in interstitial lung disease. -Select the statistical test which should be done to determine correlation.
Synthesis <i>Creating</i> 3	Originates, integrate and combines ideas into a product, plan or proposal that is new to him or her. Bring together parts of knowledge to form a whole and build relationships for new situations. Unique communication. Set of abstract relations.	Arrange Assemble Collect Compose Construct Create	Design Formulate Manage Organize Plan	Prepare Propose Set up Synthesize Write	-Rank order your hypotheses concerning the cause of patient symptoms. -Construct a flow chart which summarizes all the elements of the study findings.
Evaluation <i>Creating</i> 3	Appraises, assesses, or critiques on a basis of specific standards and criteria Make judgement on basis of given criteria. Ability to judge value for purpose; support judgement with reasoning.	Appraise Argue Assess Attack Choose	Compare Estimate Evaluate Judge Predict	Rate Score Select Support Value	-Select the most effective treatment from a list of options. -Evaluate the reliability and validity of research claims/statistics.

SMART Objectives

- Specific:** The objective should specifically state what the student is expected to be able to do.
- Good example:* **Explain** the interaction of acetylcholine with acetylcholine receptors, using the ligand-receptor theory.
- Poor example:* Understand the ligand-receptor theory..
- Measurable:** The expectation of performance should be measurable at the level of expected cognitive performance. The objective can be measured within the scope of the course.
- Good example:* Draw the chemical structure of XYZ.
List the contraindications of ABC.
Prepare a sterile solution.
- Poor example:* Develop sympathy for the disenfranchised in need of health care.
- Appropriate:** The objectives should be clearly stated, specific topics of expectations appropriate to the student level and ability.
- Good example:* Discuss the pathophysiological changes associated with Liver Disease
(For P-1 students)
- Poor example:* Discuss the advantages and disadvantages of using antivirals in treating HBV. (For P-1 students)
- Relevant:** The objective should be applicable to the course content as it pertains to the education of PharmD students. The connection – or reason why students need to know this should be applicable to general pharmacy practitioners.
- Good example:* Describe strategies for prevention of West Nile Virus.
List the most common pathogens involved in skin and soft tissue infections.
- Poor example:* Know how to classify disorders using the DSM IV criteria.
- Timely:** Objectives should be sequenced in a logical developmental learning pattern throughout the course allowing the student to acquire base knowledge before moving on to more detailed information. Objectives should proceed each lecture block.
- Good example:* (1) Apply pathophysiology to disease state XX.
(2) Describe the clinical manifestations and lab values associated with disease state XX.
(3) Define an appropriate therapeutic regimen for XX including drug, dosage, monitoring parameters, & therapy duration.
(4) Given a specific patient with disease XX, recommend an appropriate therapeutic regimen.
- Poor example:* Appreciate skin and soft tissue infections.

Quick Guide to Writing Learning Objectives

☉ Select a **verb** that best describes the type of **behavior** (or task) the student must demonstrate to establish competency.

☉ Under what **conditions** must be the task be performed?

☉ To what **standard** must the task be performed (proficiency level)?
Note: often 100 percent accuracy is implied rather than stated.

✂ Given **condition** __, the student will be able to **behavior** __ in accordance with **standard** __.

✂ After course completion, the student will be able to **behavior** __ provided (given) **condition** __ in accordance with **standard** __.

✂ The student will be able to **behavior** __ when **condition** __ according to **standard** __.

Behavior (or Task)	What behavior/task must the learner perform? A single action verb chosen from applicable knowledge domain.
Condition	Stipulation or requirement about task to be performed
Standard (or Proficiency)	Competency ,expertise, accuracy of task performance.

Examples:

1. After course completion, the student will be able to accurately (**standard**) draw a monoclonal antibody (**condition**), label (**verb**) each part and explain (**verb**) the function of each (**condition**).
2. Given multiple drug classes (**condition**), the student will be able to compare and contrast (**verb**) the routes of metabolism.. *100% accuracy implied.*
3. Given a specific patient profile (**condition**), the student will be able to provide (**verb**) an appropriate (**standard**) therapeutic drug plan.
4. Given a specific patient profile (**condition**), the student will be able to integrate (**verb**) knowledge of pathophysiology and pharmacology to select (**verb**) an appropriate (**standard**) therapeutic treatment.

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:



Articulating Learning Objectives

Endow your topic presentation with strong internal structure conducive to student learning.

Alignment among three main course components ensures an internally consistent structure. Alignment occurs when:

- 📖 OBJECTIVES articulate the knowledge and skills you want students to acquire by the end of the topic presentation.
- 📖 ASSESSMENTS allow the instructor to check the degree to which the students are meeting (met) the learning objectives.
- 📖 INSTRUCTIONAL STRATEGIES are chosen to foster student learning towards meeting the objectives.

When these components are not aligned, students may rightfully complain that the test did not have anything to do with what was covered in class, or instructors might feel that even though students are earning a passing grade, they have not yet mastered the material at the desired level.

Aligning these three components is a dynamic process. A change in one necessarily affects the other two.

