

How do you write meaningful outcomes/objectives?

1. Start with:
 - a. What do you want students to be able to 'know', 'do', or 'demonstrate'?
 - b. By the end of a defined time period (lecture, lab, course, unit, etc.)
2. Consider: How will you assess they have achieved this?
 - a. Good outcomes are *SMART*: **S**pecific, **M**easurable, **A**chievable, **R**ealistic, **T**ime-bound
3. Write: **Common stem** + **verb** + description of knowledge, skills or attribute
 - a. E.g. **On completion of the course, the student should be able to analyze** CBC reports for common domestic species and **generate** a ranked differential list for the constellation of abnormalities present.
4. How to select verbs?
 - a. The verbs define the level of knowledge, skill, or the attribute required/desired
 - b. Select verb that 'students could demonstrate to you' or 'you could observe'
 - c. Tips:
 - i. Utilize resources such as Bloom's taxonomy/verb lists. Learn more about Bloom's taxonomy here: <http://www.celt.iastate.edu/teaching/effective-teaching-practices/revised-blooms-taxonomy>
 - ii. Avoid 'understand', 'know', 'appreciate', or 'discuss'
 - iii. Clarify language: Is performing the skill enough? Or does the quality matter? If so, use that descriptive language (e.g. safely, effectively, or consistently)

Examples:

On completion of this course, students should:

	Learning Outcome	Comments
Option 1 (not an outcome)	Be given opportunities to learn effective evaluation of clinical laboratory testing	Describes course content, not successful student(s).
Option 2 (too vague)	Have a deeper understanding of effective evaluation of clinical laboratory testing	Does not start with an action verb or define level of learning; subject of learning is not specific.
Option 3 (less vague)	Understand the principles of effective evaluation of complete blood counts (CBCs)	Starts with an action verb yet the subject of learning is still too vague for assessment.
Option 4 (specific)	Analyze complete blood count (CBC) reports for common domestic species and generate a differential diagnosis list from the analysis.	Starts with an action verb which defines level of learning; is specific, provides context, and is measurable.

How to use objectives/outcomes:

- Provides an answer to the common question, "Is this on the test?"
- Use them to make outcomes or objectives for your individual teaching sessions/lectures or as a starting point to develop your lectures, assignments, in-class activities.
 - o Rule of thumb: maximum of 5 to 6 NEW learning objectives/50 minute class. Greater than this is too much content.
- Design your assessment (e.g. test) questions directly from them. Well written outcomes are easily translated into test questions. Importantly, they are defensible in a legal challenge and in the eyes of the AVMA COE.

Writing Learning Objectives (Bloom's Taxonomy)

The levels are listed in increasing order of complexity, followed by verbs that represent each level.

KNOWLEDGE: remembering previously learned facts.

Cite	List	Reproduce
Define	Match	Select
Identify	Name	State
Label	Recognize	

COMPREHENSION: ability to understand or grasp the meaning of material.

Convert	Extend	Paraphrase
Describe	Give examples	Summarize
Estimate	Illustrate	Translate
Explain	Interpret	

APPLICATION: ability to use previously learned material in new and concrete situations.

Apply	Modify	Relate
Computer	Operate	Show
Construct	Predict	Solve
Demonstrate	Prepare	Use
Discover	Produce	

ANALYSIS: ability to break down material into its component parts so that its organizational structure may be understood.

Analyze	Differentiate	Infer
Associate	Discriminate	Outline
Determine	Distinguish	Point out

SYNTHESIS: ability to put parts together to form a new whole.

Combine	Develop	Plan
Rewrite	Compile	Devise
Propose	Tell	Compose
Integrate	Rearrange	Write
Create	Modify	Reorganize
Design	Organize	Revise

EVALUATION: ability to judge the value of material for a given purpose; also, the ability to make decisions.

Appraise	Conclude	Judge
Assess	Contrast	Weigh
Compare	Evaluate	

Writing Learning Objectives (Bloom's Taxonomy)

EXAMPLES

1. Knowledge

- a. The student will be able to list all of Piaget's developmental states in the correct order for an in-class exam.
- b. Recall the four major food groups without error.
- c. Identify an appropriate contemporary media issue

2. Comprehension

- a. Describe the seven steps of the research process when writing a paper.
- b. Explain Newton's three laws of motion in their own words.

3. Application

- a. Calculate the kinetic energy of a projectile.
- b. Given fractions not covered in class, the student will multiply them on paper with 85 percent accuracy.

4. Analysis

- a. Differentiate between potential and kinetic energy.
- b. Describe the interrelationships among acts in a play.

5. Synthesis

- a. The student will be able to design a study outside of class that addresses a given problem. The experiment should contain the six components given in class.
- b. Given a short story, the student will write a different but plausible ending.

6. Evaluation

- a. The student will be able to judge a paragraph's value according to the six criteria for an out-of-class assignment.
- b. Given a description of a country's economic system, the student will defend it by basing arguments on principles of socialism.