

Instructions for Writing Student Learning Outcomes

(From various sources)

Creating student learning outcomes for your degree or service program is a process. Some programs have found the following steps to be helpful:

Step 1

Start by having a faculty/staff meeting (including students and community members, ideally) and brainstorm about what an ideal graduate would know, understand, and be able to do...and/or

Consult the web site for your professional/disciplinary organization – many of them are developing student learning outcomes for degree or service programs at various levels.

Step 2

Agree on a first draft of a list of outcomes, understanding that they will be revised several times before becoming firm (or definitive) and that they will change over time for currency in the discipline or service area and changing needs and characteristics of students.

Step 3

List the student learning outcomes on every syllabus for the required courses in your degree program (or programs within your student service area), indicating which of them will be covered in each particular course (or service program).

Step 4

Gather feedback from students in each course or service program about how well they perceive that student learning outcomes were addressed.

Step 5

Assess student learning by designing assignments specifically geared to measure achievement of each of the outcomes that are designated for each course, degree program, or service area.

Step 6

In light of this data, meet (with faculty, staff, and students) at the end of each semester or academic year and revise the list of outcomes, teaching methods, curriculum, and/or program.

Step 7

Repeat the above steps regularly and as needed to improve student learning.

Bloom's Classification of Cognitive Skills

(From Ball State University)

- Bloom's levels of cognitive skills are provided in the table below, along with definitions for each skills, and related behaviors. The terms can be used to create student learning outcomes that tap into each of the ability levels.

| Category | Definition | Related Behaviors |
|---------------|--|--|
| Knowledge | recalling or remembering something without necessarily understanding, using, or changing it | define, describe, identify, label, list, match, memorize, point to, recall, select, state |
| Comprehension | understanding something that has been communicated without necessarily relating it to anything else | alter, account for, annotate, calculate, change, convert, group, explain, generalize, give examples, infer, interpret, paraphrase, predict, review, summarize, translate |
| Application | using a general concept to solve problems in a particular situation; using learned material in new and concrete situations | apply, adopt, collect, construct, demonstrate, discover, illustrate, interview, make use of, manipulate, relate, show, solve, use |
| Analysis | breaking something down into its parts; may focus on identification of parts or analysis of relationships between parts, or recognition of organizational principles | analyze, compare, contrast, diagram, differentiate, dissect, distinguish, identify, illustrate, infer, outline, point out, select, separate, sort, subdivide |
| Synthesis | reating something new by putting parts of different ideas together to make a whole. | blend, build, change, combine, compile, compose, conceive, create, design, formulate, generate, hypothesize, plan, predict, produce, reorder, revise, tell, write |
| Evaluation | judging the value of material or methods as they might be applied in a particular situation; judging with the use of definite criteria | accept, appraise, assess, arbitrate, award, choose, conclude, criticize, defend, evaluate, grade, judge, prioritize, recommend, referee, reject, select, support |

Additional Links Related to Bloom's Taxonomy

- <http://www.coun.uvic.ca/learn/program/hndouts/bloom.html>
- <http://faculty.washington.edu/krumme/guides/bloom.html>
- <http://www.utexas.edu/student/utlc/handouts/1414.html>
- http://www.apa.org/ed/new_blooms.html
- http://projects.coe.uga.edu/epltt/index.php?title=Bloom%27s_Taxonomy

Action Verb List – Suggested Verbs to Use in Each Level of Thinking Skills

- Below are terms (verbs) that can be used when creating student learning outcomes for a course or degree program.

| Knowledge | Comprehension | Application | Analysis | Synthesis | Evaluation |
|------------|---------------|-------------|---------------|-------------|------------|
| Count | Associate | Add | Analyze | Categorize | Appraise |
| Define | Compute | Apply | Arrange | Combine | Assess |
| Describe | Convert | Calculate | Breakdown | Compile | Compare |
| Draw | Defend | Change | Combine | Compose | Conclude |
| Identify | Discuss | Classify | Design | Create | Contrast |
| Labels | Distinguish | Complete | Detect | Drive | Criticize |
| List | Estimate | Compute | Develop | Design | Critique |
| Match | Explain | Demonstrate | Diagram | Devise | Determine |
| Name | Extend | Discover | Differentiate | Explain | Grade |
| Outlines | Extrapolate | Divide | Discriminate | Generate | Interpret |
| Point | Generalize | Examine | Illustrate | Group | Judge |
| Quote | Give examples | Graph | Infer | Integrate | Justify |
| Read | Infer | Interpolate | Outline | Modify | Measure |
| Recall | Paraphrase | Manipulate | Point out | Order | Rank |
| Recite | Predict | Modify | Relate | Organize | Rate |
| Recognize | Rewrite | Operate | Select | Plan | Support |
| Record | Summarize | Prepare | Separate | Prescribe | Test |
| Repeat | | Produce | Subdivide | Propose | |
| Reproduces | | Show | Utilize | Rearrange | |
| Selects | | Solve | | Reconstruct | |
| State | | Subtract | | Related | |
| Write | | Translate | | Reorganize | |
| | | Use | | Revise | |
| | | | | Rewrite | |
| | | | | Summarize | |
| | | | | Transform | |
| | | | | Specify | |

Verb List for Student Learning Outcomes – Six Levels of Learning

Student learning outcomes for a degree program will encompass several levels of learning, from the acquisition of facts to the ability to think critically and solve problems. Each statement of a student learning outcome should include a **VERB** that represents the level of learning that is expected.

Recommendation: Write questions that test skills other than recall. Research shows that most tests administered by faculty rely too heavily on students' recall of information (Milton, Pollio, and Eison, 1986). Bloom (1956) argues that it is important for tests to measure higher-learning as well. Fuhrmann and Grasha (1983, p. 170) have adapted **Bloom's taxonomy** for test development. According to Bloom's taxonomy, there are six levels of learning: knowledge, comprehension, application, analysis, synthesis, and evaluation.

The following is a list of verbs for use when creating student learning outcome statements:

To measure **knowledge** (common terms, facts, principles, procedures), ask these kinds of questions: Define, Describe, Identify, Label, List, Match, Name, Outline, Reproduce, Select, State. Example: "List the steps involved in titration."

To measure **comprehension** (understanding of facts and principles, interpretation of material), ask these kinds of questions: Convert, Defend, Distinguish, Estimate, Explain, Extend, Generalize, Give examples, Infer, Predict, Summarize. Example: "Summarize the basic tenets of deconstructionism."

To measure **application** (solving problems, applying concepts and principles to new situations), ask these kinds of questions: Demonstrate, Modify, Operate, Prepare, Produce, Relate, Show, Solve, Use. Example: "Calculate the deflection of a beam under uniform loading."

To measure **analysis** (recognition of unstated assumptions or logical fallacies, ability to distinguish between facts and inferences), ask these kinds of questions: Diagram, Differentiate, Distinguish, Illustrate, Infer, Point out, Relate, Select, Separate, Subdivide. Example: "In the president's State of the Union Address, which statements are based on facts and which are based on assumptions?"

To measure **synthesis** (integrate learning from different areas or solve problems by creative thinking), ask these kinds of questions: Categorize, Combine, Compile, Devise, Design, Explain, Generate, Organize, Plan, Rearrange, Reconstruct, Revise, Tell. Example: "How would you restructure the school day to reflect children's developmental needs?"

To measure **evaluation** (judging and assessing), ask these kinds of questions: Appraise, Compare, Conclude, Contrast, Criticize, Describe, Discriminate, Explain, Justify, Interpret, Support. Example: "Why is Bach's Mass in B Minor acknowledged as a classic?"

Many faculty members have found it difficult to apply this six-level taxonomy, and some educators have simplified and collapsed the taxonomy into three general levels (Crooks, 1988): The first category is knowledge (recall or recognition of specific information). The second category combines comprehension and application. The third category is described as "problem solving," transferring existing knowledge and skills to new situations.

Additional Resources on How to Write Learning Outcomes

From Ball State University

Getting Started

Before writing or revising departmental goals/objectives, you might try a few of the following.

- Have some open discussion sessions on one of the following topics or something similar.
 - Describe the ideal student in your program at various phases throughout your program. Be concrete and focus on those strengths, skills, and values that you feel are the result of, or at least supported and nurtured by, the program experience. Then ask:
 - What does this student know?
 - What can this student do?
 - What does this student care about?
 - List and briefly describe the program experiences that contribute most to the development of the ideal student.
 - List the achievements you implicitly expect of graduates in each major field?
 - Describe your alumni in terms of such achievements as career accomplishments, lifestyles, citizenship activities, and aesthetic and intellectual involvement?

- Collect and review instructional materials. Try sorting materials into 3 broad categories: recognition/recall, comprehension/simple application, critical thinking/problem-solving. Use any of the following:
 - syllabi and course outlines
 - course assignments and tests
 - textbooks (especially the tables of contents, introductions, and summaries)

- Collect and review documents that describe your department and its programs:
 - brochures and catalogue descriptions
 - accreditation reports
 - curriculum committee reports
 - mission statements

- Review and react to goals and objectives from another unit that is similar but external (ex. another department or college in the Mid-American Conference). Try grouping the statements into broad categories of student outcomes (i.e., knowledge, attitudinal, behavioral).

- Use the 25 percent problem to refine or reduce a set of goal statements. Imagine that you want to reduce program or course material by 25 percent. What goals would you keep and which would you discard?
- Administer a goals inventory or conduct an interview study. Involve a variety of groups (or "stakeholders") when possible.
- Use a Delphi technique or a modification. This involves administering a series of related questionnaires in which information from the initial form is provided so that respondents can use it to revise their responses on subsequent forms. The objective is to develop consensus before writing goals or objectives.
- Shaping Department Goals and Objectives for Assessment – Definitions, Q&A, Getting Started with writing learning outcomes.