Guidelines for Bloom's Taxonomy Usage
For Instructional Design

Background:

Bloom's Taxonomy is a widely-recognized tool for instructional design that is intended to help frame the graduated increase in complexity and mastery between programs of instruction at different levels and over the course of a particular program of study.

Students at the graduate level should have a more advanced grasp of their subject of study than undergraduates. Over the four years of an undergraduate program, there should be a perceiptible increase in the intended educational outcomes of courses within a particular major. For example, an introductory course will rightly emphasis understanding the framework of the academic discipline while capstone course will require the students to engage in the conversation within the academic discipline critically.

Bloom's Taxonomy is a tool that outlines the vocabulary that indicates the progressive nature of educational outcomes. As such, it is a standard tool among educators for defining and demonstrating the gradual increase in mastery over a course of study. Whether one entirely agrees with the categorization and definition of each of the verbs within Bloom's taxonomy, it provides a recognized standard that can help students, educators, and evaluators apprehend differences in the expectations of courses at diverse levels.

Because of its general acceptance and overall usefulness, and because Bloom's Taxonomy is already utilized in many of our faculty courses and programs, the Academic Deans of Oklahoma Baptist University have adopted the following guidelines for the use of Bloom's Taxonomy in developing course syllabi at various levels. These guidelines should not be treated as rigid rules, but a general guidelines intended to signal advancements in expectations of mastery.

Using these verb structures anticipates an increased focus on intended student learning outcomes for particular courses rather than reliance on course objectives. Course objectives often reflect a chronological list of expected learning activities within a period of instruction. Learning outcomes emphasize the knowledge, skills, and attitudes faculty anticipate their students will attain to during the acceptable completion of the course. Course-level student learning outcomes should generally be distinct from program student learning outcomes, thought they should reflect a contribution to a given program-level student learning outcome. In upper level courses, a given course may use a given program-level student learning outcome as one of several intended course-level learning outcomes.

Ultimately, faculty are responsible for the design and content of instruction. These guidelines reflect an effort to ensure OBU is consistent with best practices in higher education.

Guidelines:

The following guidelines assume that the course numbering system generally reflects at OBU generally reflects the expected progression of students within a degree program. Therefore, 1000-level courses are presumed to be introductory Freshman courses, 4000-level courses are anticipated to be more advanced Senior courses, and 5000 or 6000-level courses are considered graduate level courses.

There will be overlap between adjacent levels, but there should be an overall trend toward progress in learning complexity. Thus, the differences between a 1000-level course and a 4000-level course should be

readily apparent while the progression between a 2000-level course and a 3000-level course may be subtler.

There are obvious differences in discipline expectation, so that comparing a 2000-level music course—in which students may be expected to compose original works within an existing style or genre—to a 2000-level history course—in which students will likely be responsible for demonstrating a certain level of knowledge and the ability to argue for an interpretation of those facts—will not be representative. Rather than looking horizontally across disciplines, faculty should primarily focus on the vertical progress of student learning through their degree program.

1000-level courses:

Introductory courses should focus on lower-level cognition, affections, and psychomotor skills. So, using the attached tables, these courses have anticipated learning outcomes that include "define," "select," "identify," "compare," and other verbs from the two lower tiers. These verbs should be chosen to reflect the purpose of an introductory course in framing the discipline and equipping with basic skills. There may be some verbs chosen that reflect application of basic knowledge like "calculate," "identify," "diagram," or "test" depending on the discipline and the nature of the course. However, there should rarely be any higher order verbs, such as "critique," "assess," "design," and "formulate" within these courses.

2000-level courses:

These courses are often still introductory level courses, which should still focus on lower-level cognition, affections, and psychomotor skills. Therefore, there may be significant similarity in the verb choice a syllabus at the 1000-level and the 2000-level, particularly when the 2000-level is a first introduction to a discipline intended for sophomores who are selecting a major. There will still likely be an emphasis on basic knowledge verbs such as "select," "define," and "compare." There will likely, however, be an increasing bias toward middle-tier verbs, such as "criticize," "diagnose," "solve," and "predict." Most 2000-level courses will avoid higher order verbs.

3000-level courses:

Courses that are, nominally, Junior-level should be designed to build upon the knowledge skills developed in earlier 1000-level and 2000-level courses. They should also be anticipating a higher degree of mastery that will be gained in 4000-level courses. Since 3000-level courses are still at the undergraduate level and our existing educational system assumes the highest level of cognition occurs at what might be considered the 6000-level or beyond, instructors should be careful not to too significantly advance along the scale of complexity in verb selection. A 3000-level course may have some lower level verbs, but should focus on mid-level verbs like "appraise," "survey," and "modify." These sorts of skills rely upon established frameworks to reach conclusions consistent with those anticipated by experienced practitioners of the discipline. The 3000-level course outcomes should begin to reach into the higher-order with verbs like "assess," and "recommend" as learners advance beyond the basics and begin to rigorously apply existing frameworks in the discipline.

4000-level courses:

As a traditional, undergraduate institution, there is a temptation to treat 4000-level courses as capstones of learning, using verbs from Bloom's Taxonomy from the highest domains. However, these senior courses are still not intended to equip students to be innovative theoreticians in their selected disciplines.

Therefore, they will still largely rely upon mid-level verbs with a higher percentage of higher-level verbs than courses assigned to the Junior year. A student at this level should have the ability to defend existing discipline structures, but should not be expected to devise new ones. The verbs in course objectives and learning outcomes at this level should emphasis the ability to "argue," "assess," "support," and skills that demonstrate a thorough comprehension and ability to apply knowledge through a critical, evaluative lens.

5000-level courses:

Courses at the masters level should be advanced in nature and should emphasize the analytical and evaluative skill of students. Rarely should course outcomes be focused on verbs like "define," "list" or "summarize." These lower cognitive levels may be reflected in instruction throughout the course, including activities, but should not reflect the desired end-state of the course. Even at the masters level, though, students should not be expected to formulate innovative theories or verify existing practices within the academic discipline. Verbs within the statement of desired course outcomes should verbs lie "argue," assess," and "support" while venturing into the highest level of "composing," "producing," and "arranging," which all demonstrate mastery of the skills and knowledge of the discipline without presuming theoretically innovative scholarship.

6000-level courses:

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Resources:

OBU promotes an ascending scale of rigor for courses as the student progresses from introductory level courses to the most advanced courses in respective degree programs, and between undergraduate and graduate degrees. Tables 1, 2, & 3, below, are resources that OBU faculty can utilize to formulate kinds of knowledge and skills with associated verbs in the taxonomy that reflect an ascending scale of rigor. These tables are useful for syllabus creation and student learning outcomes. Figure 1, below, is a rubric that faculty may use as they construct student learning outcomes for individual courses or programs and consider how they fit within the overall course or program design.

Table 1. The Knowledge Dimension – Bloom's Revised Taxonomy

Major Types and Subtypes	Examples
A. Factual Knowledge – The basic elements students must know to be acquainted with a discipline or solve problems in it	
AA. Knowledge of terminology	Technical vocabulary, music symbols
AB. Knowledge of specific details and elements	Major natural resources, reliable sources of information
B. Conceptual Knowledge – The interrelationships among the basic elements within a larger structure that enable them to function together	
BA. Knowledge of classifications and categories	Periods of geological time, forms of business ownership
BB. Knowledge of principles and generalizations	Pythagorean theorem, law of supply and demand
BC. Knowledge of theories, models, and structures	Theory of evolution, structure of Congress
C. Procedural Knowledge – How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods	
CA. Knowledge of subject-specific skills and algorithms	Skills used in painting with water colors, whole-number division algorithm
CB. Knowledge of subject-specific techniques and methods	Interviewing techniques, scientific method
CC. Knowledge of criteria for determining when to use appropriate procedures	Criteria used to determine when to apply a procedure involving Newton's second law, criteria used to judge the feasibility of using a particular method to estimate business costs
D. Metacognitive Knowledge – Knowledge of cognition in general as well as awareness and knowledge of one's own cognition	
DA. Strategic knowledge	Knowledge of outlining as a means of capturing the structure of a unit of subject matter in a textbook, knowledge of the use of heuristics
DB. Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge	Knowledge of the types of tests particular teachers administer, knowledge of the cognitive demands of different tasks
DC. Self-knowledge	Knowledge that critiquing essays is a personal strength, whereas writing essays is a personal weakness; awareness of one's own knowledge level

From: Anderson, Krathwohl, Airasian, Cruikshank, Mayer, & Pintrich, 2001.

Table 2. The Cognitive Process Dimension – Bloom's Revised Taxonomy

Categories & Cognitive Processes	Alternative Names	Definitions and Examples
1. Remember – Retrieve relevant knowledge from long-term memory		
1.1 Recognition	Identifying	Locating knowledge in long-term memory that is consistent with presented material (e.g., Recognize the dates of important events in U.S. history)
1.2 Recalling	Retrieving	Retrieving relevant knowledge from long-term memory (e.g., Recall the dates of important events in U.S. history)
2. Understand – Construct meaning from instructional messages, including oral, written, and graphic communication		
2.1 Interpreting	Clarifying, paraphrasing, representing, translating	Changing from one form of representation (e.g., numerical) to another (e.g., verbal) (e.g., Paraphrase important speeches and documents)
2.2 Exemplifying	Illustrating, instantiating	Finding a specific example or illustration of a concept or principle (e.g., Give examples of various artistic painting styles)
2.3 Classifying	Categorizing, subsuming	Determining that something belongs to a category (e.g., concept or principle) (e.g., Classify observed or described cases of mental disorders)
2.4 Summarizing	Abstracting, generalizing	Abstracting a general theme or major point(s) (e.g., Write a short summary of the events portrayed on a videotape)
2.5 Inferring	Concluding, extrapolating, interpolating, predicting	Drawing a logical conclusion from presented information (e.g., In learning a foreign language, infer grammatical principles from examples)
2.6 Comparing	Contrasting, mapping, matching	Detecting correspondences between two ideas, object, and the like (e.g., Compare historical events to contemporary situations)
2.7 Explaining	Constructing models	Constructing a cause-and-effect model of a system (e.g., Explain the causes of important 18th-century events in France)
3. Apply – Carry out or use a procedure in a given situation		
3.1 Executing	Carrying out	Applying a procedure to a familiar task (e.g., Divide one whole number by another whole number, both with multiple digits)
3.2 Implementing	Using	Applying a procedure to an unfamiliar task (e.g., Use Newton's Second Law in situations in which it is appropriate)

Table 2, Continued

Categories & Cognitive Processes	Alternative Names	Definitions and Examples
4. Analyze – Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose		
4.1 Differentiating	Discriminating, distinguishing, focusing, selecting	Distinguishing relevant from irrelevant parts or important from unimportant parts of presented material (e.g., Distinguish between relevant and irrelevant numbers in a mathematical word problem)
4.2 Organizing	Finding, coherence, integrating, outlining, parsing, structuring	Determining how elements fit or function within a structure (e.g., Structure evidence in a historical description into evidence for and against a particular historical explanation)
4.3 Attributing	Deconstructing	Determine a point of view, bias, values, or intent underlying presented material (e.g., Determine the point of view of the author of an essay in terms of his or her political perspective)
5. Evaluate – Make judgments based on criteria and standards		
5.1 Checking	Coordinating, detecting, monitoring, testing	Detecting inconsistencies or fallacies within a process or product; determining whether a process or product has internal consistency; detecting the effectiveness of a procedure as it is being implemented (e.g., Determine if a scientist's conclusions follow from observed data)
5.2 Critiquing	Judging	Detecting inconsistencies between a product and external criteria, determining whether a product has external consistency; detecting the appropriateness of a procedure for a given problem (e.g., Judge which of two methods is the best way to solve a given problem)
6. Create – Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure		
6.1 Generating	Hypothesizing	Coming up with alternative hypotheses based on criteria (e.g., Generate hypotheses to account for an observed phenomenon)
6.2 Planning	Designing	Devising a procedure for accomplishing some task (e.g., Plan a research paper on a given historical topic)
6.3 Producing	Constructing	Inventing a product (e.g., Build habitats for a specific purpose)

From: Anderson, Krathwohl, Airasian, Cruikshank, Mayer, & Pintrich, 2001.

Table 3. Verbs for Bloom's Taxonomy

Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Arrange	Classify	Calculate	Combine	Appraise	Arrange
Define	Describe	Construct	Figure	Argue	Assemble
Locate	Identify	Demonstrate	Find	Assess	Compose
Recall	Indicate	Estimate	Sketch	Defend	Create
Recite	Organize	Illustrate	Solve	Estimate	Design
Describe	Interpret	Interpret	Predict	Judge	Devise
Repeat	Illustrate	Appraise	Change	Predict	Formulate
Identify	Reorganize	Contrast	Survey	Qualify	Invent
Select	Translate	Criticize	Compare	Rate	Manage
Quote	Paraphrase	Diagnose	Diagram	Support	Modify
Label	Summarize	Identify	Examine	Critique	Organize
Copy	Transform	Classify	Test	Recommend	Plan
List	Discuss		Modify		Prepare
Name	Explain				Produce
State	Defend				Propose
	Compare				Set up
	Report				Verify
	Restate				Construct
	Review				Develop
	Rewrite				

From: The Eberly Center for Teaching Excellence, Carnegie Mellon University (Carnegie Mellon University, n.d.)

Figure 1. The Taxonomy Table

The Knowledge Dimension	The Cognitive Process Dimension					
	Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Factual Knowledge						
Conceptual Knowledge						
Procedural Knowledge						
Meta-Cognitive Knowledge						

From: Anderson, Krathwohl, Airasian, Cruikshank, Mayer, & Pintrich, 2001.

(NOTE: This is a tool to be used for evaluating verb usage in a syllabus, not for assessing student work.)