

DEVELOPING LEARNING OUTCOMES

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Model of Learning Objectives

- Anderson and Krathwohl's (2001) revision of the original Bloom's taxonomy (Bloom and Krathwhol, 1956)
- <http://www.celt.iastate.edu/pdfs-docs/teaching/RevisedBloomsHandout.pdf>

A **learning outcome** is a statement of the knowledge, abilities, and attributes students will derive from their education.

Learning outcomes are collaboratively authored and accepted.

In addition to taking into account a program's curricular and co-curricular offerings, should incorporate or adapt outcomes statements from professional organizations, when they exist.

Learning outcomes can be either qualitatively or quantitatively assessed, and should consider knowledge, skills, behavior, attitudes, and values.

Guiding Questions

What does the school or program expect its students to be able to do upon graduation?

How can students demonstrate what they know and can do?

How do individual courses prepare students to meet these expectations?

How do academic or professional experiences outside of coursework prepare students to meet these expectations?

How do co-curricular experiences prepare students to meet these expectations?

How are outcomes communicated? Has the faculty discussed outcomes or disclosed them to the students?

Context

- Accountability movement in higher ed: What are students learning, and how do we know?

Importance of Action Verbs and Examples from Bloom's Taxonomy

- Action verbs result in overt behavior that can be observed and measured (see list below).
- Certain verbs are unclear or relate to covert, internal behaviors that cannot be observed or measured. Such verbs should be avoided.
- Examples: appreciate, become aware of, become familiar with, know, learn, understand, be “able to”

Level	Type of activity or question	Verbs used for objectives
Lowest level	Knowledge	Define, memorize, repeat record, list, recall, name, relate, collect, label, specify, cite, enumerate, tell, recount
	Comprehension	Restate, summarize, discuss, describe, recognize, explain, express, identify, locate, report, retell, review, translate
	Application	Solve, simulate, apply, employ, use, demonstrate, dramatize, practice, illustrate, operate, calculate, show
Higher levels	Analysis	Interpret, classify, analyze, arrange, differentiate, group, compare, organize, contrast, examine, investigate
	Synthesis	Compose, plan, produce, prepare, propose, hypothesize, invent, incorporate, develop, formulate
	Evaluation	judge, assess, decide, measure, appraise, deduce, predict, recommend, select, choose, infer

Writing Student Learning Outcomes

- Identify what knowledge, capabilities, and attitudes students should demonstrate upon completion of a program.
- The resulting outcomes....
- Should be specific and well defined.
- Should be clearly communicated to students.
- Should be measurable.
- Should be realistic, but also represent your highest goals for student learning.
- Should be aligned with the program's curriculum as well as professional guidelines and standards.

Additionally,

- A learning outcome is a declarative sentence, and the verb you choose is important. Choose measurable, action-oriented verbs.
 - **NOTE:** Consider the difference between verbs that are “active” and verbs that are “operational”
- Include examples of assessments or assignments designed to elicit student behaviors.
- Include a context, either discipline specific or general

General vs. specific language

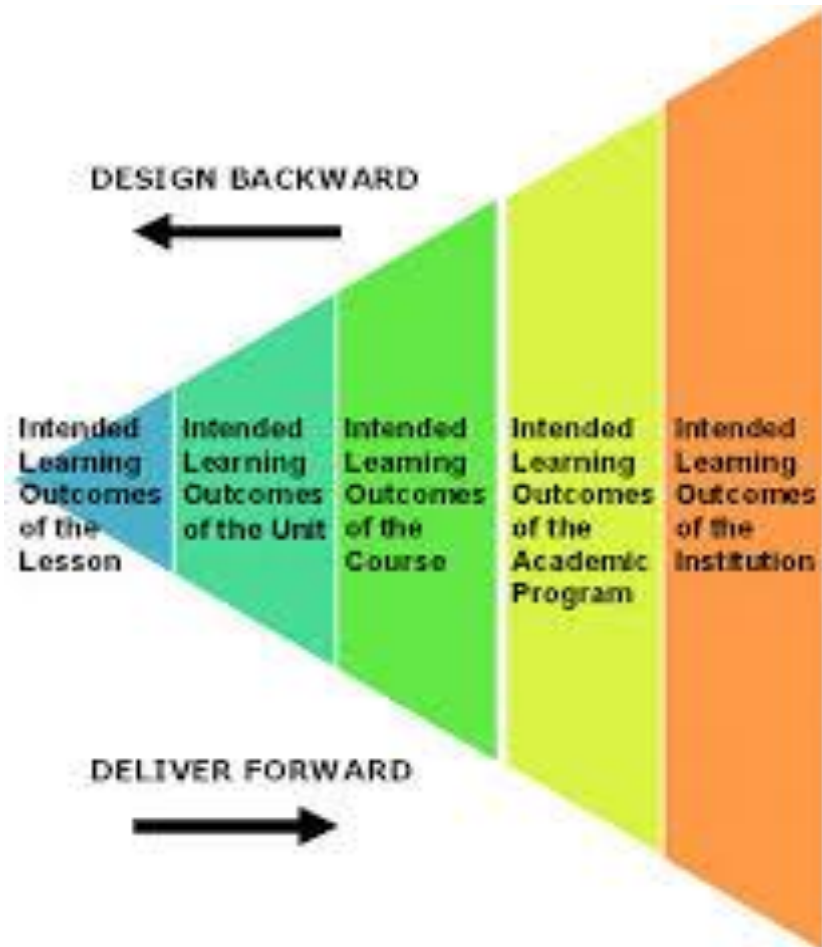
The student possesses historical understanding

The student demonstrates knowledge of European History

The student demonstrates knowledge of major political turning points in European history since the Renaissance.

- “The student possesses an understanding of the fundamentals of chemistry.”
- “The student describes the distinctive features of organic chemistry.”
- “The student identifies and visually displays the functional groups of organic molecules.”

- “The student will recognize the relevance of...”
- “The student will acquire understanding of...”
- “The student will become familiar with...”
- “The student will have a systematic approach to...”
- “The student will function effectively in...”



What is Curriculum Mapping?

- Curriculum mapping is the process of matching learning outcomes with elements of the curriculum to create an alignment between goals and learning opportunities
- May be done at the institutional, program, or course level
- For the purposes of assessing program learning outcomes, curriculum mapping visually represents key elements of a program and how they contribute to student learning

Why do it?

- Curriculum mapping makes it possible to identify where in the program learning objectives are addressed
- Use it to create, verify, or clarify an alignment between what students do in their courses or co-curricular experiences and what faculty expect them to learn.
- Helps identify gaps as well as opportunities for assessment

Example

	Program Learning Outcomes				
Course	Outcome #1	Outcome #2	Outcome #3	Outcome #4	Outcome #5
XYZ 101	I	I	I		I, P, M *
XYZ 110		I		I	
XYZ 200	P				
Stats 101	P	P	P		
XYZ 240			P	P	
XYZ 340		P		P	
XYZ 390	M *				
Internship		P	M *	M *	
Capstone	M *	M *	M *	M *	

I= introduced, P= practice/development, M= Mastery * =assessment opportunity

Sample Business Program Matrix

OBJECTIVES	ASSOCIATED LEARNING OUTCOMES	PROGRAM CURRICULUM: SPECIFIC COURSES AND RELATIONSHIP TO OUTCOME*																								
* Objectives of the Business Management Program are designed to assist students in the development of:	The graduating student will be able to:	ACC101 - Intro Accounting I	ACC102 - Intro Accounting II	BUS101 - Intro to Business	BUS211 - Business Law I	CIS110 - Computer Applications	ENG101 - English Composition I	ENG102 - English Composition II	FIN201 - Business Finance	MG1201 - Prin of Management	MK1210 - Prin of Marketing	PSY101 - Intro to Psychology	SOC101 - Intro to Sociology	Business Electives	Comm Elective	Economic Elective	EQ2201 or 202	Math Electives	MA1120 or higher	Science Elective	Open Elective	Rec: ART & HUM				
		Critical Thinking Skills	LO1			I	R		I	R		I	R	R	R	R	R	R		R						
LO2	Evaluate the evidence and data relevant to the topic of inquiry			I	R		I	R	E	I	R				R	R										
LO3	Apply logical, scientific, and/or quantitative reasoning to develop a thesis or hypothesis	I	R				I	R	E	I	R	R					R	R								
LO4	Apply business theory and research to analyze case studies and current issues in business			I						I	R					R	R			R	R					
LO5	In response to an assignment, use correct, standard American English to produce clear, well-organized written reports			I	R		I	R	E	I	R	R					R									
LO6	In response to an assignment, use correct, standard American English to deliver clear, well-organized oral presentations		R				I	R	E	I	R	R	R				R	R								
LO7	Demonstrate knowledge of communication media (i.e., print, broadcast, etc) available to business managers / owners		I	R		I	R										R									

Curriculum Mapping Template

Program/Course Name _____

Curriculum	Learning Outcomes						

Crafting the language of Learning Outcomes

- Learning outcomes should be simple, not compound.
- Focus on what students will demonstrate, using active verbs in the future tense.
- Focus on the learning product, not on the process (eg “introduces mathematical concepts” does not focus on results);
- Should focus on the program level.

Sample Outcomes in need of revision:

- “Students completing the BS in Chemistry should be well practiced in the relevant skills of the field”
- “Students completing the BS in mathematics should be able to analyze and interpret data to produce meaningful conclusions and recommendations and explain statistics in writing.”
- “Students will be exposed to legal reasoning.”
- “Students will be able to grasp the requirements of multilateral diplomacy involving both state and non-state actors and apply this theoretical knowledge to ongoing and new issues in international politics.”

Examples

- Students will define the essential attributes of insurance. (Program outcome 1)
- Students will explain the theoretical underpinnings of the UCC. (Program outcome 1)
- Students will analyze legal problems in the secured transactions context. (Program outcome 2)
- Students will critique the structure of health care regulations. (Program outcome 2)
- Students will demonstrate competency in ascertaining client objectives and determining transaction structures through simulated communications and interactions. (Program outcome 3, [4?])

- Students will communicate orally and in writing with proficiency.
- Students will be able to analyze and document information.
- Students will show awareness of and appreciation of relevant historic and cultural contexts.
- Students will show an understanding and appreciation of rhetorical and aesthetic viewpoints.
- Students will demonstrate the ability to integrate material from different fields of study to develop reasonable conclusions.

Deriving assessment measures

- Course embedded (student papers and projects) vs. stand-alone (performance task)
- Direct measures (commercial standardized exams, locally developed exams, oral examinations, performance appraisals, simulations, experiential and capstone or keystone course projects, student portfolios)
- Indirect measures (surveys, interviews, small-group/focus group interviews, student reflections, employment information)

Further Reading

- Adelman, Clifford. “To Imagine a Verb: The Language and Syntax of Learning Outcomes Statements.”
Occasional Paper 24. NILOA, February 2015
- Anderson, LW (Ed.), Krathwohl, D. R. (Ed.), et. al. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives*. New York: Longman, 2001.
- Palomba, C. and Banta, T., eds. *Assessing Student Competence in Accredited Disciplines*. Sterling, VA: Stylus Publishing, 2001.
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