A Guide to Learning Outcomes

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1. What is a learning outcome?

- A statement in specific and measurable terms of what a student will know or be able to do as the result of having successfully completed a course or a program of study.

2. What are the characteristics of a good learning outcome statement?

- It is clear and specific.
- It uses action verbs.
- It expresses levels of knowledge and ability.
- It states the context in which the student will demonstrate knowledge and skills.
- It is measurable.

3. What are the purposes of learning outcomes?

- They inform students of what knowledge and skills they will gain through a course or a program of study.
- They map the relationships between courses, programs of study and degrees.
- They map the development of knowledge and skills at each level of curricula.
- They communicate standards of performance.
- They provide a structure for evaluating teaching and learning.
- They inform curriculum design and pedagogic practice.

4. Types of learning and levels of learning outcomes

Types:

1. Cognitive Objectives (**Knowing**): Emphasis is on knowing, conceptualizing, comprehending, applying, synthesizing, and evaluating. These objectives deal with students' knowledge of the subject matter, and how students demonstrate this knowledge.

2. Psychomotor Objectives (**Doing**): Physical skills and dexterity are involved; success in instruction involves teaching new skills or coordination of old ones (e.g., physical coordination involved in playing tennis).

3. Attitudinal Objectives (**Thinking/Feeling**): Emphasis is on attitudes, values and emotions.

*From Writing Learning Objectives, Module #2, Teaching and Learning: An Individualized Course for Instructors in Higher Education, Centre for Learning and Development, McGill University, 1977.

Levels– Bloom's Taxonomy:

Bloom's Taxonomy has been around since the mid- to late 50's. It provides an approach to thinking about learning outcomes and levels of learning.

Bloom's Taxonomy of Educational Objectives	
Level 1: *Knowledge* requires students to remember or recall information without necessarily understanding the required material. The behavior includes describing, identifying or labeling.	**Level 4**: *Analysis* involves students' ability to use critical thinking and emphasizes analysis and evaluation. This requires breaking down information into components and seeing relationships and ideas. The related behavior includes comparing, categorizing, or differentiating.
Level 2: *Comprehension* is concerned with understanding and comprehending learned material or information. Students' behavior demonstrates the ability to explain, discuss and or interpret materials or a condition.	**Level 5**: *Synthesis* involves students' ability to put parts together to form something original. This requires the learner to use creativity to design, compose, and create new designs or creations.
Level 3: *Application* involves students' ability to put ideas, concepts and actions into play to solve problems. In this case, students are demonstrating, showing and making use of information.	**Level 6**: *Evaluation* involves making judgment based on evidence or defined criteria. Students' related behavior includes criticizing, prioritizing and recommending.

5. Examples of typical action verbs in learning outcomes

Knowledge: Remembering or retrieving previously learned material.

know	memorize	recognize
identify	repeat	acquire
list	indicate	record
cite	label	state
count	name	tabulate
define	point	tell
describe	quote	trace
draw	read	
recall	recite	

Comprehension: The ability to grasp or construct meaning from material.

restate	discuss	compute
locate	review	convert
report	infer	expand
explain	illustrate	extrapolate
express	interpret	interpolate
	represent	summarize
	associate	

Application: The ability to use learned material or to implement material in new and concrete situations.

apply	practice	find solutions
develop	calculate	order
translate	show	perform
use	exhibit	predict
operate	dramatize	sketch
employ	complete	solve
restructure	demonstrate	utilize

Analysis: The ability to break down or distinguish the parts of material into its components so that its organizational structure may be better understood.

analyze	detect	discriminate
compare	survey	separate
probe	classify	debate
inquire	deduce	determine
examine	experiment	diagram
contrast	scrutinize	distinguish
categorize	discover	generalize
differentiate	inspect	inventory
investigate	dissect	question

Synthesis: The ability to put parts together to form a coherent or unique new whole.

compose	collect	originate
produce	set up	derive
design	document	write
assemble	combine	compile
create	relate	integrate
prepare	propose	manage
modify	arrange	plan
invent	construct	prescribe
formulate	organize	specify

Evaluation: The ability to judge, check, and even critique the value of material for a given purpose.

judge	select	grade
assess	estimate	rank
evaluate	validate	recommend
conclude	consider	revise
measure	appraise	score
decide	value	test
choose	criticize	
rate		

Based on: Bloom, B.S. and Krathwohl, D. R. (1956) *Taxonomy of Educational Objectives: The Classification of Educational Goals, by a committee of college and university examiners. Handbook I: Cognitive Domain.* NY, NY: Longmans, Green.

Words to Avoid *(Avoid using these words and phrases when writing learning outcomes)*:

- be comfortable with
- believe
- enjoy
- grasp the significance of
- have faith in
- internalize
- learn

6. Examples of learning outcomes statements

(from course syllabi recently submitted to the Provost's Office)

Course A

Currently stated course objective(s):

The fields of medicine and science are major generators of news in today's world and the general population needs journalists who are accomplished interpreters of developments in those fields. Students in this class will learn to translate complicated scientific material into clear, graceful prose accessible to a mass audience. They will learn how science works to explain the world about us, and how it proceeds at a stately pace, testing hypotheses and publishing results in journals. Several weeks will be spent understanding how to decipher such published results. Similar class time will be devoted to methods of gathering news from expert sources, interviewing strategies and the like. Above all, great emphasis will be placed on critical thinking and the ability to make independent evaluations of scientific claims. The science journalist is a major check on unwarranted assertions and outright fraud, and a needed guide through swarms of conflicting data.

Restated as Learning Outcomes
At the conclusion of this course students will be able to: ➢ Scrutinize and correctly identify a variety of scientific methods, theories, and strategies related to how science explains the world around us. ➢ Interpret complicated scientific material from experts and translate it into clear, graceful prose accessible to a mass audience. ➢ Analyze published results in journals by testing their hypotheses, independently evaluate scientific claims and draw logical conclusions based on scientific methods.

Course B

Currently stated course objective:

Know basic spreadsheet concepts and know when a spreadsheet is an appropriate tool to choose.

Restated as Learning Outcomes
At the conclusion of this course students will be able to: ➢ Create and manipulate spreadsheets, formulae, concepts and calculations. ➢ Navigate, enter data, copy and move text. ➢ Analyze data demonstrating real world scenarios by creating professional-quality charts and diagrams.

Course C

Currently stated course objective:
Introduce students to business structures, law, client and corporate design issues, and ways to manage the process through to successful professional conclusions.

Restated as Learning Outcomes
At the conclusion of this course students will be able to: ➢ Comprehend design management and understand the relationships between design practice and clients. ➢ Apply design practice concepts (including business structure, client and business development, law, marketing, and writing proposals/contracts) to a professional business.

Course D

Currently stated course objective(s):
Through close, in-class examination of classic science fiction stories and the best of student stories from previous classes, students will analyze the science fiction techniques of speculation and extrapolation in the context of plot structure. They will become familiar with the concepts of the genre: science fiction idea, story problem, narrative hook, rising suspense, crisis, climax, and resolution. At the same time, they will develop their own ability to use these techniques and concepts in their own work, producing a series of story openings as short, practice assignments and later writing complete short stories. As much student work as possible will be read aloud in class and discussed by the students using the same analytical tools used on the published work. The goal of the course is to prepare and encourage students to produce thoughtful, finished science fiction stories of at least near-publishable quality.

Restated as Learning Outcomes
At the conclusion of this course students will be able to: ➢ Analyze the science fiction techniques of speculation and extrapolation in the context of plot structure. ➢ Demonstrate familiarity with the concepts of the genre: science fiction idea, story problem, narrative hook, rising suspense, crisis, climax, and resolution. ➢ Develop and apply the concepts of the genre within their own work as they produce a series of story openings leading to publishable work. ➢ Examine and diagram writings of members within the class using analytical skills and editorial standards.

7. Checklist for preparing course learning outcomes

Course Number: _____

Stated Outcome:	**Action Verbs** □ **Yes** □ **No**	**Is the stated outcome measurable?** □ **Yes** □ **No**	□ **Level 1: Knowledge** Knowing specific facts, principles, etc.
			□ **Level 2: Comprehension** The ability to explain a point.
			□ **Level 3: Application** Using previously known facts to solve a problem.
			□ **Level 4: Analysis** The ability to break a product apart into its requisite elements or logical components.
			□ **Level 5: Synthesis** The ability to create something.
			□ **Level 6: Evaluation** The ability to judge quality.
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8. Link to syllabus template

The Columbia College Chicago syllabus template and guidelines can be found here.