

How to Write Course and Program Outcomes

Tulsa Community College

One of the first steps in identifying the learning outcomes for a course is identifying the *purpose* of the course. By clarifying the purpose of a course, faculty can help discover the main topics or themes related to students' learning. These themes help to outline the expected learning outcomes for a course.

The **course purpose** involves the following:

1. What role does this course play within the major?
2. How is the course unique or different from other courses?
3. Why should/do students take this course?
4. What essential knowledge or skills should they gain from this experience?
5. What knowledge or skills from this course will students need to have mastered to perform well in future classes or jobs?
6. Why is this course important for students to take?

The course purpose goes beyond the basic course description to describe how a course fits into the student's educational experience.

Learning outcomes have three major characteristics:

1. They specify an action by the students/learners that is **observable**.
2. They specify an action by the students/learners that is **measurable**.
3. They specify an action that is done by the **students/learners** (rather than the faculty members).

Course outcomes refer to specific knowledge, practical skills, areas of development, attitudes, high-order thinking skills, etc. that faculty members expect students to develop, learn, or master during a course. Course outcomes are measurable statements that simply define what faculty members want students to know and be able to do by the end of a course.

The purpose of identifying course outcomes is to...

- increase consistency among different modes of learning and instructors
 - i.e., face-to-face, online, blended, ITV, theory, clinical, etc.
- inform students of the standards and expectations
 - helps students learn more effectively and clarifies what they can hope to gain from their college experience
- serve as an implicit contract between instructor and students setting up a basis for mutual accountability.
- guide the formation of instructional activities
 - e.g., textbook selection, teaching resources, instructional methods, etc.
- provide a framework for developing assessments to evaluate student learning
- facilitate curriculum development.
- create a framework for evaluating overall effectiveness of an educational program.
- provide evidence of student learning for accreditation and other reporting purposes.

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Effective course outcomes...

- begin with the phrase, After completing this course, students will be able to...
- are limited in number: 6-10 statements focusing on the course's big ideas
- use active verbs that are measurable, quantitatively or qualitatively, and focus on what students will be able to do, rather than on course content or activities
 - avoid using more than one action verb
 - avoid verbs such as the ones listed at the bottom of this page
- are stated clearly and with specificity
 - **Good:** Students will be able to access the TCC website.
 - **Better:** Students will be able to describe the steps of logging into MyTCC through the TCC website.
- are stated concisely at a competent level, are succinct, and eliminate filler words, such as effectively, competent, accurate, and well
 - **Good:** Students will be able to use a calculator well.
 - **Better:** Students will be able to use a calculator.
- include complex or higher order skills as appropriate
 - see the different levels of verbs listed on the next few pages
- separate distinct sets of skills by articulating skills in 2 different outcomes
 - **Good:** Students will be able to write a thesis paper using correct MLA formatting.
 - **Better:** (1) Students will be able to use MLA formatting. (2) Students will be able to write a thesis paper.
- bundle multiple related skills that are steps in a process in 1 outcome
 - **Example:** Students will be able to generate, test, and analyze hypotheses.
- are stated such that the outcome can be measured by more than one assessment method
 - **Example:** Students will be able to compare and contrast the artistic techniques of 19th and 20th century artists by writing a plot for a short story.
- may specify criteria or standards (accuracy, quality, time constraint, or quantity) under which the behavior occurs
 - **Example:** Students will be able to use calipers to measure an object within two millimeters of accuracy.
- may specify conditions (i.e., given "X" or without "Y") under which the behavior occurs
 - **Example:** Students will be able to graph a scatter plot from data without using a graphing calculator.

Avoid using verbs that are difficult to measure or observe, such as...

- | | | |
|--------------------------|-----------------------------|-----------------|
| • appreciate | • comprehend | • learn |
| • be aware of | • cover | • practice |
| • be familiar with | • do | • realize |
| • become acquainted with | • demonstrate understanding | • respect |
| • be taught | • gain knowledge of | • study |
| • be shown | • know | • understanding |

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The Three Learning Domains

Outcomes fall into one of three domains: cognitive, affective, or psychomotor. Will the students be acquiring knowledge and intellectual skills (cognitive); developing values, ethics, or attitudes (affective); or developing physical skills (psychomotor)? Examine what knowledge, skills, and attitudes are necessary and significant for the students to acquire during their college experience. Bloom's (1956) taxonomy of learning differentiates among the following three domains of learning:

- 1) **The Cognitive Domain** (mind/head): targets knowledge and intellectual skills
- 2) **The Affective Domain** (spirit/heart): targets attitudes, interests, feelings, values, and ethics
- 3) **The Psychomotor Domain** (body/hands): targets physical and manipulation skills

The major categories of each domain are described briefly in order, from the simplest ability level to the most complex. Use this list to help select verbs to express distinct performance expectations for students and to create outcomes.

1) The Cognitive Domain (mind/head)

There is a lot of focus in higher education on the cognitive domain (i.e., knowledge and the development of intellectual skills); thus it is important to examine various levels of cognitive understanding. This domain is broken-down into six categories: it begins with knowledge level learning and advances up the taxonomy to comprehension, application, and then the higher order skills involved in analysis, synthesis, and evaluation or problem solving. The phrasing of outcomes will help guide both instructional activities and assessment; therefore, it is important to identify the emphasis of learning and the relevant verb. The categories represent degrees of difficulty (i.e., the first one must be mastered before the next one can take place).

Level I: Remembering — the student exhibits memory of previously learned material by recalling facts, terms, basic concepts, and answers

Level II: Understanding — the student establishes understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas

Level III: Applying — the student solves problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way

Level IV: Analyzing — the student examines and breaks information into parts by identifying motives or causes and can make inferences and find evidence to support generalizations

Level V: Evaluating — the student presents and defends opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria

Level VI: Creating — the student compiles information together by combining elements in a new pattern or proposing alternative solutions

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List of verbs for the cognitive domain

Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
choose	arrange	apply	analyze	agree	adapt
define	associate	build	appraise	appraise	build
describe	clarify	change	arrange	assess	change
find	classify	chart	assume	award	combine
identify	comprehend	choose	calculate	choose	compile
know	conclude	classify	categorize	compare	compose
label	convert	compute	compare	conclude	construct
list	defend	construct	contrast	confirm	create
locate	demonstrate	deliver	correlate	criticize	derive
match	determine	develop	differentiate	critique	design
memorize	consequence of	dramatize	discover	decide	develop
name	discuss	employ	dissect	deduct	discuss
omit	distinguish	experiment	distinguish	defend	draft
outline	draw conclusions	with	divide	determine	elaborate
recall	estimate	generalize	examine	diagnose	find solution
recite	explain	identify	experiment	disprove	for
recognize	express	illustrate	infer	estimate	formulate
relate	extend	implement	inspect	evaluate	imagine
reproduce	generalize	interview	inventory	influence	improve
select	give an example	make use	motive	interpret	integrate
show	infer	of	outline	judge	invent
state	interpret	manipulate	simplify	justify	make up
tell	paraphrase	model	solve	measure	manage
write	predict	modify	survey	perceive	modify
	rephrase	operate	take part in	prioritize	originate
	respond to	order	test for	prove	organize
	restate	organize	verify	rank	plan
	rewrite	plan		rate	predict
	show	practice		recommend	prepare
	summarize	prepare		research	propose
	translate	produce		revise	reorder
		relate		rule on	shape
		sketch		select	solve
		solve		support	structure
		tabulate		weigh	suppose
		transcribe		value	synthesize
		use		validate	test
		utilize			theorize
					transform

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2) The Affective Domain (spirit/heart)

This domain includes the manner in which students deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories listed in order are...

Level I: Receiving — students show awareness of the benefits of a particular value, attitude or interest; receiving is concerned with holding and directing the student's attention (e.g., the student listens attentively)

Level II: Responding — refers to active participation on the part of the student (e.g., the student willingly answers questions)

Level III: Valuing — the student sees personal worth in a value, belief, attitude, or interest (assignment); displays behavior in situations where s/he is not forced to comply or obey

Level IV: Organizing — the student is committed to building a set of values as displayed by behavior (e.g., the student criticizes arguments and positions presented in class)

Level V: Internalizing — the student's total behavior is consistent with internalized values (e.g., the student displays self-reliance in working independently)

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List of verbs for the affective domain

Receiving	Responding	Valuing	Organizing	Internalizing
acknowledge	agree to	accept	adapt	act
ask	answer	adhere to	adhere	advocate
attend closely	ask	adopt	alter	behave
to	assist	approve	arrange	characterize
be able to	cite	argue	categorize	conform
choose	clarify	choose	classify	continue
concentrate	communicate	commit	combine	co-operate
describe	comply	complete	compare	defend
discuss	conform	confront	complete	devote
do	consent	contribute	defend	disclose
follow	contribute	criticize	design	discriminate
give	cooperate	debate	establish	display
identify	discuss	describe	explain	encourage
listen	follow-up	desire	formulate	endure
attentively	greet	differentiate	generalize	exemplify
read	help	display	group	function
reply	indicate	encourage	identify	incorporate
show sensitivity	inquire	endorse	integrate	influence
take part in	label	evaluate	modify	is industrious
tolerate	obey rules	exhibit	order	is punctual
	participate in	explain	organize	is self-disciplined
	discussions	express	perform	is self-reliant
	pursue	form	prepare	justify
	question	initiate	rank	listen
	react	integrate	rate	maintain
	read	invite	recognize the	modify
	reply	join	need for	pattern
	report	justify	recognize the	perform
	request	maintain	role of	preserve
	respond	monitor	relate	promote
	seek	prefer	resolve	propose
	select	propose	revise	qualify
	show interest in	refute	solve	question
	show preference	report	synthesize	retain
	visit	sanction	systemize	revise
	volunteer for	select	test	serve
		share	weigh alternatives	support
		show concern		uphold
		for work		use objective
		support		approach in

3) The Psychomotor Domain (body/hands)

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The major categories listed in order are...

Level I: Imitation — The student observes skills and attempts to repeat them.

Level II: Manipulation — The student continues to practice a particular skill or sequence until it becomes habitual and the action can be performed with some confidence and proficiency. The response is more complex than at the previous level, but the learner still is not sure of him/herself.

Level III: Precision — The student reproduces a skill with accuracy, proportion, and exactness, requiring a minimum of energy; usually performed without hesitation.

Level IV: Articulation — involves an even higher level of precision. The skills are so well developed that the student can modify movement patterns to fit special requirements or to meet a problem situation.

Level V: Naturalization — The student's response is automatic. The student begins to experiment, creating new motor acts or ways of manipulating materials out of understandings, abilities, and skills developed. The student acts "without thinking".

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List of verbs of the psychomotor domain

Imitation	Manipulation	Precision	Articulation	Naturalization
adhere	acquire	achieve	adapt	arrange
assemble	assemble	accomplish	alter	combine
attempt	build	advance	change	compose
carry out	complete	automatize	combine	construct
copy	conduct	calibrate	coordinate	create
calibrate	do	complete	develop	design
construct	execute	control	excel	invent
dissect	implement	demonstrate	formulate	manage
duplicate	improve	exceed	integrate	refine
follow	maintain	excel	modify	specify
mimic	make	master	rearrange	originate
move	manipulate	perfect	reorganize	transcend
organize	operate	reach	revise	
practice	pace	refine	solve	
proceed	perform	show	surpass	
repeat	produce	succeed	transcend	
replicate	progress	surpass		
reproduce	re-create	transcend		
respond	use			
organize				
sketch				
start				
try				
volunteer				

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Generally, outcome statements from individual courses within a program should clearly tie into to the overall program learning outcomes (curriculum mapping), demonstrating that the learning and assessment activities within the various individual courses are leading to students successfully achieving the program's outcomes. Each course should have at least one outcome that is aligned with the program level outcome. However, not all course level outcomes need to be aligned with the program level outcome. Program outcomes should drive course outcomes (design backward and deliver forward). If a curriculum map shows that there are not enough opportunities for students to satisfy certain program learning outcomes, learning outcomes for some courses may need to be modified and possibly new courses need to be offered.

Program level outcomes are statements that describe significant and essential learning that students have achieved, and can reliably exhibit at the end of a course or program. Program outcome statements are much broader than outcomes statements at the course level.

The purpose of identifying program outcomes is to...

- identify core competency areas of the program consistent with the mission/purpose of the program and the institution.
- clarify what students should know, believe, or be able to do after completing a degree program.
- reflect student growth and development while engaged in activities or events within the program and at the institution (not the means or the process).
- articulate the values students should express through their attitudes and behaviors after completing a degree program.
- focus on the result of the learning experiences within the degree program.
- provide a framework for developing assessments to evaluate student learning at the program level.
- create a framework for evaluating overall effectiveness of an educational program.
- evaluate the relevance of the program to meet the current needs of the constituencies.
- provide evidence of student learning for accreditation and other reporting purposes.



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Effective program outcomes...

- begin with the phrase, After completing this program, students will be able to...
- are limited in number: 6-10 statements focusing on the course's big ideas
- use active verbs that are measurable, quantitatively or qualitatively, and focus on what students will be able to do, rather than on course content or activities
 - avoid verbs such as the ones listed in the course outcomes section.
- are broad in scope
 - **Good:** Students will be able to calculate fuel consumption using an aviation calculator.
 - **Better:** Students will be able to create a flight plan.
- are stated clearly and with specificity
 - **Good:** Students will be able demonstrate information literacy.
 - **Better:** Students will be able to apply information literacy skills necessary to support continuous, lifelong learning.
- are stated concisely at a competent level, are succinct, and eliminate filler words, such as effectively, competent, accurate, and well
 - **Good:** Students will be able to competently use laboratory equipment during experimentation.
 - **Better:** Students will be able to use standard laboratory equipment, modern instrumentation, and classical techniques to carry out experiments.
- include complex or higher order skills as appropriate
 - see the different levels of verbs listed in the course outcomes section
- separate distinct sets of skills by articulating skills in 2 different outcomes
 - **Good:** Students will be able to evaluate signs and symptoms of medical conditions and select appropriate diagnostic tests
 - **Better:** (1) Students will be able evaluate signs and symptoms of medical conditions. (2) Students will be able to select appropriate diagnostic tests.
- bundle multiple related skills that are steps in a process in 1 outcome
 - **Example:** Students will be able to explain chemical nomenclature, structure, and reactivity.
- are stated such that the outcome can be measured by more than one assessment method
 - **Example:** Students will be able to employ modes of expression that respond to context, audience, and purpose.

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Identifying Common Problems

Once the elements of the learning outcomes are understood, identifying statements that fall short becomes evident. You do not need to be an expert in a specific discipline to be able to recognize a well-written outcome statement from a bad one. Below are common errors encountered when writing intended course and program outcome statements:

- The outcome is too vague.
- The outcome statement is too specific.
- The outcome statement incorporates too wide a range of skills and abilities.
- The intended outcome would be too difficult to assess.
- The outcome is not action-oriented or learner-centered.

Here are a few examples of learning outcomes. Review each statement and analyze the structure and appropriateness of the wording.

Good: After completing this course, students will be able to appreciate music from other cultures.

Comment: *How does one assess appreciation?* The intended learning statement would be too difficult to assess. Avoid using verbs that are difficult to measure or observe.

Better: After completing this course, students will be able to identify the characteristics of music from other cultures.

Good: After completing this course, students will be exposed to two different types of speeches (persuasive and informative)

Comment: *This statement is not learner centered.* This statement is not separating teaching from learning.

Better: After completing this course, students will distinguish between persuasive and informative speeches.

Good: After completing this course, students will use MS PowerPoint to complete their presentation during week 4 of the class.

Comment: *The outcome statement is too specific.*

Better: After completing this course, students will use of presentation software.

Good: After completing this program, students will be able to communicate.

Comment: *The outcome is too vague.*

Better: After completing this program, students will be able to effectively produce written, oral, and multimedia communication.

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Check whether the items below “look good” or “need work”. Comment on any items that need elaboration.

Course Outcomes: The outcomes for this course...

Looks good	Needs work
------------	------------

- | | | | |
|---|--------------------------|-------|--------------------------|
| a. are limited in number (i.e., 4-8) | <input type="checkbox"/> | | <input type="checkbox"/> |
| b. use <u>active</u> verbs that focus on what students will be able to do, rather than on course content or activities..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| c. are stated clearly (make sure outcomes statements are not too broad)..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| d. are stated concisely (assume the outcome is stated at a competent level; avoid <i>well, etc.</i>)..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| e. are measureable, either quantitatively or qualitatively (e.g., avoid <i>know, understand, etc.</i>)..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| f. include complex or higher order skills as appropriate..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| g. separate distinct sets of skills..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| h. bundle multiple related skills..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| i. are stated such that each outcome can be measured by more than one assessment method..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| j. focus on “big ideas” for the course | <input type="checkbox"/> | | <input type="checkbox"/> |

Comments: _____

Instructional Methods: The instructional methods for this course...

- | | | | |
|---|--------------------------|-------|--------------------------|
| a. reinforce the material in a variety of ways, reflecting diverse learning styles. | <input type="checkbox"/> | | <input type="checkbox"/> |
| b. make the material relevant and meaningful to the students’ lives (i.e., apply the concepts to relevant contexts) | <input type="checkbox"/> | | <input type="checkbox"/> |
| c. actively engage students in their own learning (e.g., self- or peer assessment)..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| d. allow students an opportunity to practice a skill before demonstrating their competency | <input type="checkbox"/> | | <input type="checkbox"/> |
| e. break complex course outcomes down to their component parts | <input type="checkbox"/> | | <input type="checkbox"/> |
| f. provide the students and instructor with formative feedback before the formal assessment of student learning..... | <input type="checkbox"/> | | <input type="checkbox"/> |

Comments: _____

Assessment Methods: The assessment methods for this course...

- | | | | |
|--|--------------------------|-------|--------------------------|
| a. are varied, reflecting the diverse student population | <input type="checkbox"/> | | <input type="checkbox"/> |
| b. are appropriate, given their pros and cons | <input type="checkbox"/> | | <input type="checkbox"/> |
| c. include both formative and summative assessments | <input type="checkbox"/> | | <input type="checkbox"/> |

Comments: _____

Assessment Instruments: The assessment instruments for this course...

- | | | | |
|--|--------------------------|-------|--------------------------|
| a. provide evidence about whether students have actually achieved the desired learning outcome(s)..... | <input type="checkbox"/> | | <input type="checkbox"/> |
| b. ideally, enable students to learn something through the assessment..... | <input type="checkbox"/> | | <input type="checkbox"/> |

Comments: _____