

Creating Your *Course* Outcomes and Objectives

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Course O&O's – what are they?

Course O&O's – Course Outcomes and Objectives

Many assessments performed at Delta College have been at the *course* level.

Are our students learning what we think that they are in a particular course?

Do students have the appropriate skills learned from that course?

Of course, outcomes and objectives need to be revised and updated as topics change, texts change, and technology changes. This tutorial is designed to help you (the faculty) either to write new O&O's for a course, or to look critically at old course O&O's to give them a freshening.

KEEP IN MIND... Course Outcomes are for ALL instructors of a course, not just for a single person. These are the outcomes that anyone teaching the class must reach!

Creating / Reviewing the Course O&O's

It may be that your course of interest already has outcomes that are available online or elsewhere. For those that know the current outcomes or where to find them... please obtain them!

If you do not have outcomes, we shall start by determining the outcomes.

SO... how many outcomes should there be?

Well, it is considered “best practice” for PROGRAMS to have between 4 and 8 TOTAL outcomes. That is, at the end of a series of courses, students should be able to do/perform/know a certain number of items.

Well, if it works for a program, why can't it work for a course which lasts 15 weeks or less???

Now, there seems to be no “best practice” when it comes to course outcomes and objectives... but if a series of courses taking two or more years can have 4 – 8 outcomes, wouldn't it seem possible for a single course to have a handful of general outcomes?

*** Some folks reading this (hopefully!) will think “well, the current outcomes of my class include all of the topics that are to be studied and they have to be there.” OK. Again, there seems to be no “best practice” (though there are places that claim there should be only 2-3 total outcomes in a course) when it comes to course outcomes, but at least indulge in reading the following and perhaps you may find something easier to handle. 😊 ***

Step 1: Determining the outcomes

1. After successfully completing this course... One can begin by thinking about and listing those things that students should be able to do or should know. Here are some sample questions to consider:
 - a. When students complete this class, they should know _____, be able to _____, and value _____.
 - b. Describe the ideal student in the course: “What should the person know?”, “What can they do?”
2. Once a list has been created, separate out the different ideas into categories such as “knowledge”, “skills”, etc.

3. Within each category that has been identified, try to further group the items by commonalities.
 - a. E.g., if under knowledge, 6 items are basic vocabulary while there is another group that relates to technology, make 2 separate groupings.
 - b. Examples of categories:
 - i. Communication skills
 - ii. Knowledge integration
 - iii. Information literacy
 - iv. Problem-solving skills
 - v. Using appropriate methodologies
 - vi. Apply learning to relevant phenomena
4. At this point, hopefully you have narrowed down your list to some broad groupings of items that your students should/need to be able to do upon passing the course. These broad groupings can act as your course level outcomes. These can be put on the provided sheet. If there are many outcomes, see how a few similar outcomes can be combined into a single item!

** Examples for #4 above...

CASE 1: Outcomes are taken from the Table of Contents of the text.

While this may work beautifully at first glance, do consider that the next textbook may be ordered differently or have different topics. In this case, the outcomes of the course may have to be revised. What could be even worse is if there is a change in order of topics (or topics covered) from one edition of a book to the next edition!! In many texts, chapters of information are grouped into larger headings... perhaps the outcomes could be related to the larger headings with the chapter information listed as the objectives!

For example, in a physics course, often chapters are listed as:

1. Motion in 1-D
2. Motion in 2-D
3. Forces
4. Work
5. Linear Momentum

At the start of the text (and in the Table of Contents), these chapters are all included under an umbrella of “Mechanics,” so instead of having separate outcomes on each chapter, one could write an outcome such as “Demonstrate understanding of the principles of mechanics” with the objectives being related to the sub-areas.

CASE 2: Long laundry list of topical outcomes

For example, in a course in anatomy and physiology, perhaps a partial list of outcomes includes:

1. Demonstrate understanding of circulatory system
2. Demonstrate understanding of respiratory system
3. Demonstrate understanding of nervous system
4. Demonstrate understanding of digestive system
5. Demonstrate understanding of endocrine system

There is a common theme in that all of the outcomes related to systems of the body.

Perhaps another way of looking at the outcomes is to consider

1. Demonstrate understanding of systems of the body.

Where are the specifics??? In the OBJECTIVES!!!

Do consider that, in theory, best practice is to review program outcomes in a 4-5 year cycle. To use this approach on a course could mean having to assess 4 or 5 outcomes each year if there are large numbers of outcomes. This requires a lot of work and further, to have action plans on 4 or 5 items takes time to develop and implement!

CASE 3: Long laundry list of topical outcomes

Perhaps a different approach could be to consider the general skills to be employed (critical thinking, writing, presenting) and write outcomes to these skills. In this way, the number of outcomes for a course could be brought down to a smaller number with the course content being represented in the course OBJECTIVES (Discussed in Step 6).

Step 2: Classifying the outcomes

1. Now that a broad classification of outcome categories has been formed, we shall try to write them using Bloom's Taxonomy. The attached sheet has more of a description of the different items listed below.
 - a. Knowledge
 - b. Comprehension
 - c. Application
 - d. Analysis
 - e. Synthesis
 - f. Evaluation

2. Let's start with one of the groupings of common items... under which broad category of Bloom's Taxonomy does it fall? Identify the broad category for each of your groupings.

Step 3: Writing the outcomes

1. Now, we need to write a course outcome that *can be assessed* for each of your categories!

The outcomes

- a. should be written simply (details will be considered in the rubric for scoring to be made later)
 - b. should use action verbs (a list of different examples for the different classification of terms is on the next page... BLOOM'S TAXONOMY!)
 - c. should be realistic, NOT aspirational
 - d. should be consistent with course mission
 - e. AVOID compound outcomes with multiple lines of evidence
 - f. Focus on high-priority learning (the most important things)
2. A few examples of Delta Outcomes are provided on a subsequent page.

Step 4: Reviewing / revising the outcomes

1. At this point, hopefully you have some fairly simply written outcomes for the program that do NOT have a lot of "ands" or "lists" of things in any one outcome (that would make it many outcomes and much more difficult to assess). Make the outcomes more broad statements that can include the details in the corresponding rubric.
2. Review the list that you have made and make sure that it is consistent with what you feel that your students should know/be able to do.
3. Make sure that the list is using the appropriate action verbs from Bloom's Taxonomy.

Step 5: Breathe

1. At this point... you now have a first draft of outcomes for your course!

Step 6: Objectives

1. Now that the outcomes are written, the objectives can be filled in.
2. While OUTCOMES are to be assessed, objectives are NOT the assessed item.
3. The above being written, many folks like to write the objectives using the same Bloom Taxonomy verbs so that they could be used as ways of assessing a dimension of the outcome!
4. How many objectives are best practice?... since these are not strictly assessed, there really is no limit, so use as many as needed.
*** It is in the objectives that one can put large amounts of course content that is not in the outcomes. This can be one way to limit the number of overall outcomes in the course!

Course Outcome Best Practices

- Course Outcomes should have active verbs – how students can demonstrate their learning.
- Each outcome should include *one assessable verb*.
- Each outcome should be assessable with a single line of evidence.
- Avoid compound outcomes that require multiple lines of evidence.
- Outcomes can be stated in simple language; the details are in the rubrics.
- Outcomes should be real, not aspirational.
- Don't confuse outcomes with learning processes.
- Focus on high-priority learning. What are the important things that students should be able to do after completing your course? What does faculty care about?
- Use Bloom's Taxonomy to help choose appropriate verbs and levels of learning.
- Don't use vague or difficult to assess verbs, "know, understand or appreciate."

Adapted from Mary J. Allen Assessment Workshop Handout, May 23, 2011 by T.C.

Bloom's Taxonomy and Relevant Verbs

Bloom's taxonomy is a well-known description of levels of educational objectives. It may be useful to consider this taxonomy when defining your outcomes.

Knowledge	To know specific facts, terms, concepts, principles, or theories
Comprehension	To understand, interpret, compare and contrast, explain
Application	To apply knowledge to new situations, to solve problems
Analysis	To identify the organizational structure of something; to identify parts, relationships, and organizing principles
Synthesis	To create something, to integrate ideas into a solution, to propose an action plan, to formulate a new classification scheme
Evaluation	To judge the quality of something based on its adequacy, value, logic, or use

Relevant Verbs [Gronlund, N. E. (1991). *How to write and use instructional objectives* (4th ed.). New York: Macmillan Publishing Co.]

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
cite	arrange	apply	analyze	arrange	appraise
define	classify	change	appraise	assemble	assess
describe	convert	compute	break down	categorize	choose
identify	describe	construct	calculate	collect	compare
indicate	defend	demonstrate	categorize	combine	conclude
label	diagram	discover	compare	compile	contrast
list	discuss	dramatize	contrast	compose	criticize
match	distinguish	employ	criticize	construct	decide
name	estimate	illustrate	debate	create	discriminate
outline	explain	interpret	determine	design	estimate
recall	extend	investigate	diagram	devise	evaluate
recognize	generalize	manipulate	differentiate	explain	explain
record	give examples	modify	discriminate	formulate	grade
relate	infer	operate	distinguish	generate	judge
repeat	locate	organize	examine	manage	justify
reproduce	outline	practice	experiment	modify	interpret
select	paraphrase	predict	identify	organize	measure
state	predict	prepare	illustrate	perform	rate
underline	report	produce	infer	plan	relate
	restate	schedule	inspect	prepare	revise
	review	shop	inventory	produce	score
	suggest	sketch	outline	propose	select
	summarize	solve	question	rearrange	summarize
	translate	translate	relate	reconstruct	support
		use	select	relate	
			solve	reorganize	
			test	revise	

Creating Quality Course Outcomes and Some Examples of Delta Outcomes

Some Examples of Delta College Outcomes

Course	Outcome
ACC 211	Illustrate the use of the accounting information system.
ART 231	Summarize critical analysis of ceramic concepts.
BIO 111	Communicate about biological topics.
CAD 114	Manipulate geometry using CAD drawing aids.
CD 110W	Relate theory to practice while participating in an early childhood program.
CJ 271W	Assess critically the role of the substantive criminal law in American society.
COM 112CW	Demonstrate an understanding of the communication process.
CST 180	Apply basic structuring concepts of C++ to build working programs.
DA 110	Describe the isolation techniques used to decrease moisture.
DMS 201	Discuss advances in the field of sonography.
ECN 221W	Identify the special role of the financial sector in economic activity.
EDU 214	Develop a Modern Manufacturing Unit of Instruction for a Middle School Classroom
EET 120	Demonstrate an understanding of Boolean algebra.
ENG 113	Analyze work situations, in writing or group discussion.
HIS 111W	Evaluate conflicting historical interpretations within the context of Early Western Civilization.
IHU 226W	Identify the media's components.
LSP 150	Demonstrate a cursory knowledge of the various principles connected to real estate law.
MGT 143	Demonstrate an understanding of the roles of advertising.
MT 161	Discuss proper use of rigging tools in industrial applications.
MUS 126	Compose examples of music using basic musical elements.
OAT 170	Demonstrate the ability to use the numeric keypad on the computer keyboard.
PHL 221	Identify the logic of an argument in written text.
PHY 212	Demonstrate understanding of the principles of electric circuits
PTA 120	Utilize relaxation techniques.
QA 250	Recognize the five-step D-M-A-I-C model used to improve processes.
RAD 122	Demonstrate an understanding of Digital Radiography.
SCI 150	Record experimental work to promote learning of good laboratory practices.
WET 210	Describe specific advanced wastewater treatment processes.

Course Outcomes Ideas

Grouping of Course Outcomes

Outcome 1:

Outcome 2:

Outcome 3:

Outcome 4:

Outcome 5:

Outcome 6:

Outcome 7:

Outcome 8:

Assessing Course Outcomes

At this point, perhaps assessment of the outcomes is in order! That is,

- How is each outcome to be assessed?
- Who will be assessing the outcomes and when?
- What will be done with the data generated?

If you have many students coming through your course for assessment... then only a representative unbiased sample is needed (50 – 100).

If you have fewer students, then perhaps it is best to assess all of them and accumulate data over a few years.

The table on the next page is meant as a way to fill in your assessment plan with the Who / How / When for each outcome.

** Each outcome should be assessed in, at longest, a 4-yr cycle. This means that if there are 4 outcomes in your course... your schedule may be to assess only 1 of your outcomes in 2012, a second outcome in 2013, a third outcome in 2014, and the last outcome in 2015. The cycle would start again in 2016 with the first outcome.

Step 1: Choose the Outcome that is the most ready for assessment

1. If you have been doing assessment on one of the outcomes already, or have a good idea how it is to be done, let's start with that outcome. It is NOT necessary to have the assessment device ready at this point!!! We are simply formulating a plan.
2. By knowing the courses, the "Who" is also decided in the worksheet of who will be collecting the evidence.
3. How will the data be collected? Will it be a review of an assignment? Will it be using a rubric on a particular report? Will it be a set of specific questions from an exam? Even if this is not known, make a guess as to how this might be done.

Step 2. Decide what to do with the data

1. Once data is collected, who will review it?
2. If a decision is made on who is reviewing, what will they do with the data? To whom will they report? How will all faculty in the program learn of the results?

Step 3: Lather, Rinse, Repeat

1. Decide on a cycle for how often this outcome will be assessed (every year? Every 4th year).
2. Fill in the Course Assessment Plan (Draft) to get your ideas on paper.
3. Look at the remaining outcomes and decide which is probably the next easiest (or closest to being ready) to assess.
4. Repeat Steps 1 – 3 until all outcomes are complete.

Step 4: Modify

1. With all of the information, the “Final” Course Assessment Plan can be tentatively completed.

Step 5: Breathe

1. You have just completed a Course Assessment Plan! Congratulations!

Course Assessment Plan Best Practices

General:

- Use both direct and indirect assessment.
- Use primarily summative assessment for course outcomes.

Time Period:

- Plan to assess one-two outcome per year. All outcomes do not need to be assessed every year.
- Should assess all outcomes in a three to 4 year cycle.

Student Samples:

- Evidence can be based on a relevant sample of student work. Every student does not need to be included in evidence.
- Care should be taken to avoid biased samples.
- Generally samples of 50-80 students are sufficient... but this may not be possible for a course

Ethical Issues:

- Identity of participants (faculty and students) should be anonymous in any shared results.
- Those conducting the study should keep identities confidential.

Adapted from Mary J. Allen Assessment Workshop Handout, May 23, 2011, by T.C.

Course Assessment Plan (Draft)

PLO	When	What	Who	How	Review
1					
2					
3					
4					
5					
6					
7					
8					

Course Assessment Plan (Final)

COURSE ASSESSMENT PLAN		Program:				
		When to Assess	What Direct and Indirect Evidence to Collect	Who Will Collect the Evidence	How Evidence will be Assessed	How Decisions will be Made (Review)
Course Learning Outcomes:						
1						
2						
3						
4						
5						
6						
7						
8						