

August 12, 2014

Faculty Development Day sponsored by the Innovation in Learning Center (ILC)

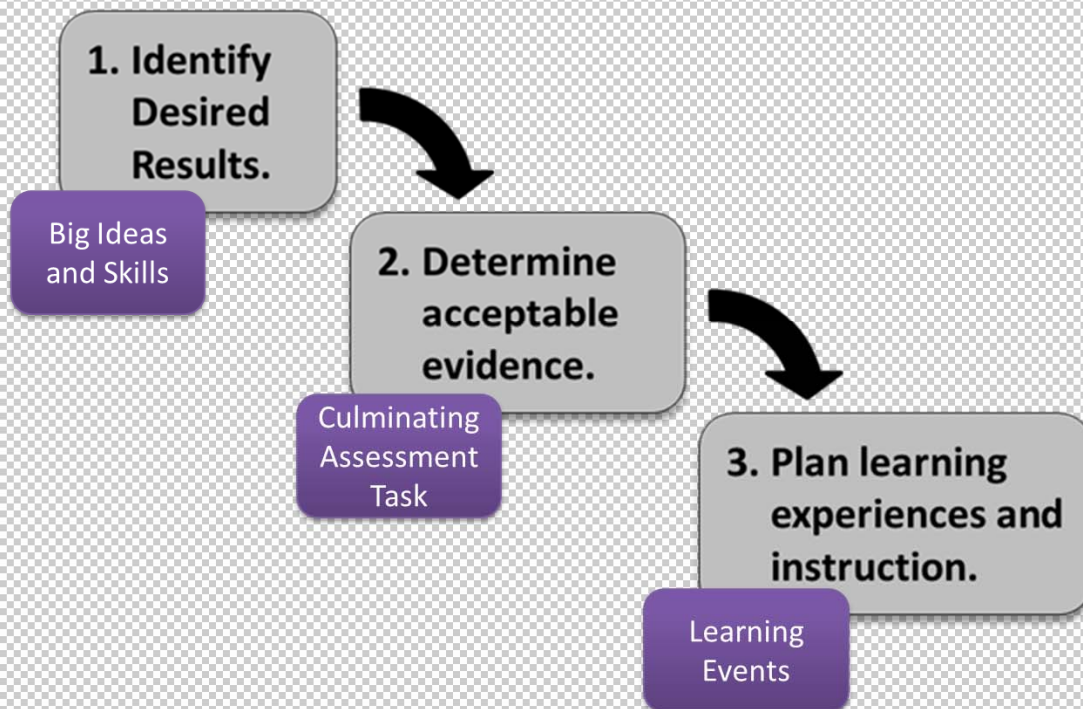
2:15 – 3:15

Linking Course-Based Assessment to Program Assessment

Outcomes:

- 1) Introduction to backward design
- 2) How to begin identifying program-level student learning outcomes
- 3) The curriculum map
  - a. Course-based student learning outcomes (aka Course Objectives)
  - b. Course-based Assessment
- 4) Linking course-based assessment to program-level assessment
- 5) Why are grades not good enough?

# Backward Design



Wiggins, G. P., & McTighe, J. (2005). *Understanding by design*. Association for Supervision & Curriculum Development.

1. Identify desired results = determine program-level outcomes (student learning outcomes).
2. Determine acceptable evidence = how will you know if students have achieved program-level outcomes (learning outcomes assessment).
3. Plan learning experiences and instruction = determine the curricula/courses (curriculum mapping).

This is just one model of backwards design. Always begin with step 1, but...

1. You might want to do step 2 before 3. In other words, you may want to plan the curricula and courses before you decide what assessments are the best evidence of learning.
2. Especially if you are locked in to a particular set of courses, it may be necessary to do number 3 first and perhaps consider a) the alignment existing course objectives to determine if there are gaps between what courses expect and what the program expects or b) the appropriateness of existing course objectives to determine if they reflect the type and level of student mastery reflected in the program outcomes.

## How to identify/develop program-level student learning outcomes (SLO)

- 1) If your program is accredited, program-level SLO's are identified for you in most cases.
- 2) Nearly every disciplinary association has published guidance in this area. Some offer specific learning outcomes and some offer guidelines for broad areas that should be reflected in SLO development. Some examples:

### Mathematics

<http://www.maa.org/sites/default/files/pdf/CUPM/summary.pdf>

### History

<http://www.historians.org/teaching-and-learning/current-projects/tuning/history-discipline-core>

### Physics

<http://www.aps.org/programs/education/undergrad/faculty/support.cfm>

### General

AAC&U—Liberal Education and America's Promise (LEAP):

<http://www.aacu.org/resources/liberaleducation/index.cfm>

If your disciplinary association has not identified SLO's or guidelines, or they have them but you choose not to use them, we suggest identifying 5-7 aspirant peer institutions in your discipline and conducting a review of their learning outcomes. The Office of Institutional Effectiveness would assist you in contacting the institutions you identify and helping you collect the necessary information. We also provide resources to help you develop your outcomes.

### Standard format for a curriculum map

Columns are the names of courses

Rows are the Student Learning Outcomes (SLO)

	Course 1	Course 2	Course 3	Course 4
SLO 1				
SLO 2				
SLO 3				
SLO 4				
SLO 5				
SLO 6				
SLO 7				

- For each SLO, indicate in the appropriate cell if the SLO (or some portion of it) is covered in that course.
- For each SLO, indicate in the appropriate cell if the SLO (or some portion of it) is assessed.

Content	Introductory Course	Research Methods	Advanced Content Course A	Laboratory / Practicum Course	Advanced Content Course B	Advanced Content Course C	Advanced Content Course D	Capstone Course
SLO 1: Disciplinary knowledge base (models and theories)	X		X		X	X	X	X
SLO 2: Disciplinary methods		X		X		X		X
SLO 3: Disciplinary applications	X		X		X		X	X
<b>Critical Thinking</b>								
SLO 4: Analysis and use of evidence		X		X	X		X	X
SLO 5: Evaluation, selection, and use of sources of Information	X	X		X		X		X
<b>Communication</b>								
SLO 6: Written communication skills	X	X		X		X		X
SLO 7: Oral communication skills		X			X	X		X
<b>Integrity / Values</b>								
SLO 8: Disciplinary ethical standards		X		X	X			X
SLO 9: Academic integrity	X	X	X	X		X		X
<b>Project Management</b>								
SLO 10: Interpersonal and team skills				X			X	X
SLO 11: Self-regulation and metacognitive skills				X		X		X

Content	Introductory Course	Research Methods	Advanced Content Course A	Laboratory / Practicum Course	Advanced Content Course B	Advanced Content Course C	Advanced Content Course D	Capstone Course
SLO 1: Disciplinary knowledge base (models and theories)	Exam Questions		Exam Questions	Exam Questions	Exam Questions	Exam Questions	Exam Questions	Capstone Portfolio
SLO 2: Disciplinary methods		Exam Questions		Exam Questions		Exam Questions		Capstone Portfolio
SLO 3: Disciplinary applications	Exam Questions		Exam Questions		Class Project		Term Paper	Capstone Portfolio
<b>Critical Thinking</b>								
SLO 4: Analysis and use of evidence		Term Paper		Lab Paper	Class Presentation		Term Paper	Capstone Portfolio
SLO 5: Evaluation, selection, and use of sources of information	Annotated Bibliography	Term Paper		Lab Paper		Term Paper		Capstone Portfolio
<b>Communication</b>								
SLO 6: Written communication skills	Reflection Essays			Lab Paper	Class Presentation	Term Paper	Term Paper	Capstone Portfolio
SLO 7: Oral communication skills			Class Presentation	Poster Session	Class Presentation	Class Presentation		
<b>Integrity / Values</b>								
SLO 8: Disciplinary ethical standards		Reflective Paper		IRB/ACUC Proposal	Reflective Paper			Capstone Portfolio
SLO 9: Academic integrity	Class Assignments & Exams	Exams & Term Paper	Class Exams	Class Assignments & Exams	Class Assignments & Exams	Exams & Term Paper	Exams & Term Paper	Capstone Portfolio
<b>Project Management</b>								
SLO 10: Interpersonal and team skills			Peer Review of Team Skills		Project Client Feedback	Exams & Term Paper	Peer Review of Team Skills	Capstone Portfolio
SLO 11: Self-regulation and metacognitive skills	Class Assignments & Exams			Class Assignments & Exams	Class Assignments & Exams	Exams & Term Paper		Capstone Portfolio

24 SH Curriculum	Introductory Course			Course Cluster 1 (3 SH) (Students Select One Course)			Laboratory / Practicum Course	Laboratory / Practicum Course	Course Cluster 2 (3 SH) (Students Select One Course)			Course Cluster 3 (3 SH) (Students Select One Course)			Capstone Course
	3 SH	3 SH					3 SH	2 SH	Cluster 2 Course A	Cluster 2 Course B		Cluster 3 Course A	Cluster 3 Course B	Cluster 3 Course C	4 SH
SLO 1: Disciplinary knowledge base (models and theories)	Introduced		Reinforced	Reinforced	Reinforced	Reinforced	Reinforced		Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 2: Disciplinary methods		Introduced		Reinforced	Reinforced			Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 3: Disciplinary applications	Introduced		Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 4: Analysis and use of evidence		Introduced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 5: Evaluation, selection, and use of sources of information	Introduced	Reinforced	Reinforced				Reinforced	Reinforced	Reinforced			Reinforced	Reinforced	Reinforced	Mastery / Assessed
Communication															
SLO 6: Written communication skills	Introduced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 7: Oral communication skills		Introduced				Reinforced		Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	
Integrity / Values															
SLO 8: Disciplinary ethical standards		Introduced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 9: Academic integrity	Introduced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
Project Management															
SLO 10: Interpersonal and team skills			Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed
SLO 11: Self-regulation and metacognitive skills	Introduced	Reinforced		Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced	Mastery / Assessed

Center for University Teaching, Learning, and Assessment  
<http://uwf.edu/cutla/>

Sample Curriculum Map (Level of Skill; Curriculum with clusters of courses)

## From program-level student learning outcomes to course-based student learning outcomes

Student Learning Outcome (aka Course Objectives)	Student Learning Experience	Student Learning Assessment	Can this assessment be used for program assessment, also?
What should students know or be able to do by the end of the course? (keep in mind the role of the course in the overall curriculum—see curriculum map)	What types of activities, readings, assignments, etc., will contribute to student learning?	What student work will you use to assess the student learning outcome?	How will this assessment be integrated as a program-level assessment?
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			



Why aren't grades good enough?

Take three students who all get a C on the final paper in the course:

- Student A got a C because of significant grammatical/mechanical errors
- Student B got a C because of significant problems with organization of content
- Student C got a C because of significant problems with citations and use of primary resources.

Each student got a C but has demonstrated a very different set of abilities (or lack thereof).

Other reasons:

- Have you ever given a student the opportunity to earn extra points to boost a grade by completing work that was in addition to the assignment?
- Have you ever included in a student's grade points for things such as participation, teamwork, previous drafts, other related work (e.g., oral presentation), or effort?

# Linda Suskie

## A Common Sense Approach to Assessment & Accreditation Blog

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### Why aren't grades good enough?

Posted on November 17, 2013 at 6:55 AM

Why aren't grades sufficient evidence of student learning?

1. Grades alone do not usually provide meaningful information on exactly what students have and have not learned. So it's hard to use grades alone to decide how to improve teaching and learning.
2. Grading and assessment criteria sometimes differ. Some components of grades reflect classroom management strategies (attendance, timely submission of assignments) rather than achievement of key learning outcomes.
3. Grading standards are sometimes vague or inconsistent. They may weight relatively unimportant (but easier to assess) outcomes more heavily than some major (but harder to assess) outcomes.
4. Grades do not reflect all learning experiences. They provide information on student performance in individual courses and assignments but not student progress in achieving program-wide or institution-wide outcomes.

That said, the grading *process* can provide excellent evidence of achievement of key learning outcomes, and using information from the grading process in this way can make assessment faster, easier, and more meaningful. NILOA (the National Institute for Learning Outcomes Assessment) has recently published a paper on how Prince George's Community College in Maryland is doing exactly this: <http://learningoutcomesassessment.org/OccasionalPaperineteen.html>.

You'll see from the NILOA paper that using the grading process to collect assessment evidence works only when faculty are willing to collaborate and agree on at least base grading criteria. I often suggest a two-part rubric: the top half provides the common criteria everyone agrees to, and the bottom half is class-specific criteria that individual faculty want to factor into grades.

## Do Grades Make the Grade for Program Assessment?

### Assessment Tips With Gloria Rogers

One of the most common questions from faculty when discussing outcomes assessment is, “We are already assessing students in courses; why can't we just use student grades as an indication of what our students know or can do?” *Grades represent the extent to which a student has successfully met the faculty member's requirements and expectations for a course.* Because many factors contribute to an assigned grade, it is almost impossible to make inferences about what a student knows or can do by only looking at the grades for a course.

In outcomes assessment at the program level, the primary question that needs to be answered is, “Can students demonstrate the ability to perform at an acceptable level in each of the program outcomes?” Program assessment focuses on providing evidence that students can demonstrate knowledge or skill directly linked to specific program outcomes. *Grades per se do not provide that information.*

One reason why course grades are not appropriate for program assessment is that *course content for any given subject may vary among faculty members teaching the same course.* When developing a course, the faculty member has to make many decisions. These include decisions about course content and course management. When deciding what topics and concepts to include in the course, the faculty member needs a clear view of how the course is aligned with other courses in the curriculum (e.g., introductory, elective, required, lower/ upper division, major, or service course). Decisions about course content are constrained by several factors: the amount of time the faculty member has to deliver the course, the knowledge and skills that students bring to the course, and the expectations other faculty have for learning brought to follow-on courses. Content may also vary with the individual faculty member's beliefs about what is important (topics, concepts, and levels of cognition students must demonstrate for each concept), the textbook chosen, and the faculty member's expertise and interests. Decisions are also made about how the course is managed, for instance the mode of delivery, number and types of tests, attendance policy, and grade structure. All of these variables contribute to the grades students receive, further confounding the ability to interpret the relationship of the grade to specific student knowledge or abilities.

Another reason why grades do not provide adequate information for program assessment is that *the grading policy in any course is dependent on the individual faculty member.* This is generally true even when there are multiple sections of the same course with common exams. Some faculty choose to give (or take away) points or partial credit for things that are not related to student learning (for example, attendance, class participation, and course evaluation). Some faculty grade on a curve; others have a fixed standard. Letter grades or numeric scores reflect the student's relative standing within the class or among other tests – relative to a set scale or relative to other students. They do not, however, tell the person interpreting the assigned grade/score what the student knows or can do, nor do they provide information about what topics or concepts he or she did not understand or how his or her learning can be improved.

Assessing program learning outcomes for the curriculum differs from assessing classroom learning outcomes in several ways, most notably the following:

When developing a curriculum, faculty collectively consider the objectives<sup>1</sup> their students will need to achieve after graduation. Once the objectives are identified, faculty decide what students should know or be able to do by the time of graduation in order to meet them. After the program outcomes<sup>2</sup> are set, the curriculum is developed/modified to represent a well articulated and aligned set of major and general education courses. Students are introduced to key concepts in the lower division courses. Then these concepts are applied in courses throughout the rest of the curriculum, as students move from knowing and understanding a concept to developing an ability to apply that knowing and understanding in various ways, in multiple settings. This process illustrates the cumulative learning effect of specific concepts and skills taught through individual courses. The assessment of program outcomes should reflect student-achievement-specific outcomes as a culmination of several classes and activities throughout the curriculum.

Just as faculty cannot include in a course everything associated with the subject matter of that course, a program cannot include in its curriculum every concept or skill set that is in the realm of possibilities for that curriculum. As in course preparation, several decisions need to be made by program faculty when determining the program outcomes to be assessed and managing the assessment process. These include deciding what learning outcomes are central to achieving the objectives, how many and what performance criteria<sup>3</sup> will be assessed for each outcome, where in the curriculum students are getting the opportunity to demonstrate the desired performance criteria associated with the outcome, how often the outcomes will be assessed, how the outcomes are going to be assessed, and how the data gathered can be used for program improvement. As in classroom assessment, these decisions are constrained by factors related to the context of the program. Some of these factors include the nature of the objectives, type of institution/program, available resources and time, and make up of students served.

For program assessment, a numeric score that is directly linked to students' performance on a specific performance criteria can be used as evidence of program learning outcomes. For example, for the outcome, "Students have an understanding of ethical responsibility," one of the performance criteria could be, "Students will demonstrate the ability to evaluate the ethical dimensions of a problem in their engineering discipline." Faculty could develop a rubric to score student performance. A rubric is a descriptive rating scale with several different observable levels of performance possible for each performance criteria being assessed. Each performance level is described and assigned a numeric score (for example, 1 = exemplary, 2 = good, 3 = adequate, 4 = marginal, and 5 = unacceptable). The number of points on the scale will depend on the level of cognition or skill that the outcome requires – but that is a discussion for a later time. Reporting the percent of students who score at each of the levels provides data that are linked directly to the anticipated outcome and focus the evaluation and strategies for improvement. It is a numerical score that provides a great deal of information about what students know or can do – but it is not a grade.

Grades will continue to be an important part of the higher education culture and should be understood for what they represent. However, for program assessment, where the purpose of the assessment is to provide information about student learning at the program level, grades in courses generally have little use. This is not to say that students cannot demonstrate program outcomes in a classroom setting. But, the measure used to assess those outcomes should be used consistently, should reflect specific student knowledge or skills, and should be directly linked to specific performance criteria. *It is important to remember that the focus is not a score or grade, but the student knowledge or skill that is represented by that score or grade.*

<sup>1</sup>Objective here is defined as the expected accomplishments of graduates during the first few years after graduation.

<sup>2</sup>Outcome here is defined as what a student knows or can do by the time of graduation.

<sup>3</sup>Performance criteria here are defined as the specific, measurable statements identifying the specific knowledge, skills, attitudes and/or behavior students must demonstrate as indicators of achieving the outcome.

## Why aren't grades enough?

(1) A discussion from North Carolina State University, retrieved from [http://www.ncsu.edu/provost/academic\\_programs/uap:FAQ/UAPRFAQwhatdifassessstudentvsprograms.html](http://www.ncsu.edu/provost/academic_programs/uap:FAQ/UAPRFAQwhatdifassessstudentvsprograms.html)

### ***What is the difference between assessing a program and assessing a student?***

Some faculty members have wondered if they could just use student grades as data for assessing academic programs. They reason that if a program outcome is related to a particular course or assignment, the grades for that course or assignment should indicate the degree to which students are able to meet the outcome. That may be true in certain rare cases, but on the whole, student grades don't provide the best data for program assessment because the two kinds of assessment are different in important ways.

First, they have different purposes. In the classroom, we design and evaluate student assignments with the goal of helping students achieve the learning objectives specific to the class and the assignment. The purpose is to use assessment as a teaching tool, for guiding and testing student learning. Program assessment's purpose is to provide faculty with the information they need to improve their programs, to determine the degree to which the program is enabling students to meet program outcomes and to propose changes in the program as indicated.

Another difference is that student learning outcomes in individual classrooms are likely to be different from program outcomes. Learning outcomes are specific to a class and to the needs of students in that class and may change from teacher to teacher and semester to semester. They provide a framework for student learning. Program outcomes tend to be broader and more general, focused on what a program's courses have in common rather than the individual outcomes of each course. And because program assessment takes a broader view, there could be program outcomes that do not appear as specific learning outcomes in any class. This difference between outcomes means that the criteria by which a teacher assesses students and by which faculty assess a program are also likely to be different.

In addition to these differences, there is also the problem that grading processes vary across faculty members, across a single faculty member's courses, across semesters, and even across particular assignments in a single course. This natural variability makes it difficult to use grades as a reliable indicator of student abilities and thus as data for assessing a program. However, if a program gives all its majors a highly reliable and valid test or other assignment directly related to a program outcome, grades on that assignment could be used for program assessment.

The fact that student grades are typically inadequate as data for program assessment doesn't mean that student work itself--research projects, essay exams, lab reports, literature reviews--is also inadequate as data. Indeed, student work may be the very best data for many program outcomes. The difference is that faculty who are doing program assessment are most likely going to take a perspective on that work that differs substantially from the teacher of the course, applying different criteria for different purposes. Thus the same data may be used for both student and program assessment, but the way those data are used is not the same.

As faculty, we assess our students and we assess our programs. These are quite different activities with quite different purposes. However, they do have one critical goal in common: student learning. Student assessment is a teaching tool designed to encourage and evaluate student learning. Program assessment is an institutional tool designed to enhance academic programs in order to improve student learning. They each play an important role in creating a better learning environment for our students.

- Mike Carter  
Associate Professor of English

(2) A discussion from California State University-San Bernadino, retrieved from <http://academic-affairs.csusb.edu/progs/assessment/forumf98.htm>

### ***Why Aren't Course Grades Enough?***

The Outcomes Assessment committee still is continually asked why course grades no longer are considered sufficient evaluation of student progress. "Don't grades have any meaning? " Well, of course, classroom grades are useful assessment tools, but the whole thrust of the assessment movement is to provide additional, more comprehensive, and more long-term evidence of student achievement. Why?

First, course grades represent evaluation of limited objectives that often are not related to program objectives. At best, grades are a type of "formative" assessment. There is too much inconsistency from section-to-section and term-to-term for grades to be a totally valid overall program assessment.

Secondly, there is an inherent conflict of interest when the instructor is the only evaluator of whether the students have met program objectives.

Third, we really need to know more about the long-term learning and accomplishments of our graduates. What do they know and what can they do at the end of the program? Finding out about their perceptions, attitudes and skills five years after graduation, on the job, in graduate school, or throughout the student's life is more difficult, but an area we are increasingly asked to provide information about.

The university assessment committee encourages departments to use classroom assessment measures and to collect data over time from key courses. We applaud the inclusion of this information on "formative" assessment in their overall assessment of the progress of their majors in meeting the stated goals and objectives of their program. Indeed, some programs have attempted to build their assessment plan around having common outcome expectations for core courses. This is a very intrusive, often difficult, and time-consuming approach, however. The Assessment Committee will not accept assessment plans which rely solely on the course instructor to set the criteria, collect and evaluate the data. Moreover, we need and expect some form of "summative" assessment to be done at the end of the program as well. The best assessment plans have multiple points and methods of assessment of student progress and accomplishment.