Good Practices in Course Assessment

Bruce M. Mackh
Wright State University

Assessment is a crucial component of institutional accreditation, informing internal and external stakeholders about the quality of teaching and learning within the institution. Faculty play a central role in accreditation through their participation in course assessment, which includes establishing objectives and outcomes for the courses they teach, selecting assessments, measuring students' learning, and using assessment results to improve curricula and pedagogies. Weaving assessment into routine educational practices helps to establish a culture of assessment throughout the institution, leading away from a compliance-based mindset to embracing assessment as a valued tool for continuous improvement.

Keywords: accreditation, assessment, compliance, culture, improvement, learning, measurement, objectives, outcomes

WHAT IS ASSESSMENT, AND WHY DOES IT MATTER?

At its most basic, assessment is judging something's quality (Merriam-Webster). Therefore, assessment is something each of us does in our everyday lives. For example, anyone who has compared their options when considering a major purchase has engaged in an assessment as they weigh the pros and cons of each choice. However, we generally use the word assessment in more formalized ways. Doctors perform assessments when evaluating a patient's health. Business executives perform assessments when evaluating their firm's yearly sales performance. And, of course, faculty assess students' performance on the assignments and exams we administer and when we determine their course grades.

Institutions of higher learning, their academic programs, and the courses that make up those programs must complete regular assessments to maintain institutional and disciplinary accreditation. In doing so, we attest to the quality of our courses, programs, and institutions. The simplest definition of assessment in this context is "deciding what we want our students to learn and making sure they learn it." (Suskie, 2018). We measure and report how well students have learned what we taught them, which serves as evidence of the quality of our education. We also use assessment results to identify areas for improvement, then act upon those findings. As a result, assessment is woven into our institutional culture, becoming more than a means of ensuring accountability but a continuous pattern of quality improvement.

AUDIENCES FOR ASSESSMENT

The fundamental purpose of assessment is to ensure we are delivering the best education it is within our power to provide (Suskie, 2018). However, assessment alone does not fulfill this purpose unless we use the results of our assessments to improve our curriculum, instruction, and programs.

The assessment also ensures accountability. Colleges and universities usually depend on "other people's money" (Suskie, 2018) in the form of tuition, philanthropy, and state funding. The assessment shows we are exercising good stewardship over those resources and holding ourselves accountable to our stakeholders, including the Board of Trustees, state government, our partners and donors, our students, and their families.

However, assessment can be uncomfortable for faculty because it opens a window on activities that usually occur apart from external scrutiny and invites "outsiders" to judge our work. Routine classroom activities like teaching, creating assignments and exams, and assigning grades often seem to occur in relative isolation. Usually, nobody but the professor and their students are familiar with a classroom's inner workings unless they deliberate to examine our syllabi or conduct classroom observations. Therefore, we should know who will view our assessment reports and why they may be interested.

The primary audience for our assessment activities is the accreditation organization associated with the institution. These include:

- Higher Learning Commission (HLC)
- Middle States Commission on Higher Education (MSCHE)
- New England Commission on Higher Education (NECHE)
- Northwest Commission on Colleges and Universities (NWCCU)
- Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)
- Western Association of Schools and Colleges Senior College and University Commission (WSCUC)

Accreditation organizations establish criteria by which they determine our institution's quality and hold us accountable for meeting these criteria. Accredited institutions write an Assurance Argument every ten years. This comprehensive document is usually over 100 pages long. It provides details about how we are meeting the criteria for accreditation based on our course and program assessments and other data about our institution. We also produce a midcycle report for our accreditors to update them on our efforts. If they find areas of concern, they may require additional reporting, as with a Focused Visit, where representatives come to campus to check our progress. Therefore, our course assessment reporting is the subject of intense interest by the accrediting organization and can have a marked impact on their evaluation of our institution.

In addition to the accrediting organization, assessment reports are reviewed by internal audiences such as department chairs, program directors, deans, departmental or college committees, and committees providing oversight of accreditation activities. This data can inform evaluations about the course and program quality, which then shape decisions about program changes, whether a course should continue to be offered, faculty course assignments, and staffing plans. These choices can profoundly impact individual faculty members, especially those whose course assessment results do not demonstrate sufficient evidence that students have achieved the course outcomes.

Furthermore, external audiences such as prospective students or their families, our graduates' employers, alumni, philanthropic foundations, partner organizations, or other donors use our assessment results to decide if our institution is a worthwhile investment, noting evidence of whether our students are prepared for careers in the fields they've studied, possess the skills employers need and want in the workplace, and have secured appropriate employment after graduation.

Formal assessments associated with accreditation reflect only one aspect of course quality or educators' expertise in teaching. Nevertheless, assessments are the primary means for assessing course quality, reflecting on us as faculty and our institution. Conscientious educators do much more in their classrooms than could be reflected by our assessment results. Consider the matter as parallel to students' experience with a final exam. The student may have learned a great deal more than is included in the final exam could reflect. Yet, this score significantly influences their course grade, which then impacts their GPA and their plans for the future, such as securing admission to a graduate program. Therefore, we expect students to study diligently for finals and put forth their best effort on test days.

Course assessment is just as important to educators as the final exam is to their students. We cannot forget that assessment is among our responsibilities as educators, nor should we overlook the fact that

assessment results reflect the quality of our teaching as well as the course, the program in which it exists, and our institution overall as judged by our accreditor, the Board of Trustees, and external audiences. A well-written assessment report demonstrating that a sufficient percentage of students have achieved the course outcomes and describing how the assessment results will guide curricular and pedagogical improvement goes a long way toward meeting the informational needs of the varied audiences who use these reports to make decisions affecting everyone in the institution.

Knowing that our engagement in assessment is valuable and significant, we'll examine the core principles of assessment upon which we can develop a deeper understanding of this essential aspect of our work as academic professionals.

CORE PRINCIPLES OF ASSESSMENT

Everyday life is filled with periodic tasks we must perform. We must file a tax return with the Internal Revenue Service every spring, see the doctor for an annual physical examination, renew our vehicle registration and driver's license with the state's Department of Motor Vehicles, pay our utility bills, and more. Many of us devote little time to thinking about these duties until a deadline is upon us, and once the task is accomplished, we return our attention to other priorities.

For faculty in higher education, course assessment can seem like yet another task that we must do simply to meet an external expectation and then set aside until the next reporting deadline approaches. However, course assessment can be far more helpful to us as educators than merely checking off a requirement. Assessment processes also provide faculty and administrators with actionable data about students' learning so we can decide how to improve the quality of our courses and programs, which then improves our institution.

Elwell and Cumming (2017) trace the evolution of assessment in higher education from its origins in educational theories of the 1930s and 1940s through theories of student development and emerging learning science in the 1970s, and the rise of competency-based learning, to the first National Conference on Assessment in Higher Education and the AAC&U's report "Integrity in the College Curriculum" in 1985. Legislators' growing calls for accountability in the 1980s and 1990s led to state-level expectations for assessment. Once seen as a management fad that would fade away, such as Total Quality Management (TQM) or Management by Objectives (MBO), assessment requirements have proven to be enduring. Assessment has become a meaningful part of curricular and pedagogical reform.

Rachel Forsyth (2023) suggests that there is no "best" approach to assessment in higher education. Instead, "letting go of the belief that there is a single correct answer provides the permission to come up with a good solution to a particular assessment situation." Knowing that we can and should customize our assessment activities to our specific contexts, priorities, purposes, and perspectives instead of searching for a perfect solution can help us confidently move forward.

The National Institute for Learning Outcomes Assessment (Jankowski, 2020) explains that assessment relies on several foundational purposes.

- Assessment is about student learning.
- Assessment is an opportunity to shift the paradigm from teaching to learning.
- Assessment creates space for critical reflection and action.
- Assessment data is valuable when it is used.

We might also conceptualize assessment as resting on five core principles.

1. As an institution of higher learning, our primary purpose is to educate students.
2. The quality of our programs and courses is measured by students' learning.
3. We measure students' learning through the regular use of assessments.
4. Assessment results reveal areas where we can improve.
5. We act on assessment results to improve our curriculum and teaching to increase students' success.

Course assessment draws upon the same practices that make us good educators, examining what we're doing in the classroom by gathering and analyzing data about our students' learning and using this information to decide how to improve our course for the next group. Furthermore, assessment builds on what we do as competent, conscientious educators. We routinely evaluate the effectiveness of our teaching and curriculum, just as we regularly measure student learning through assignments and assessments. In other words, assessment offers an opportunity to receive recognition for our good work.

Unfortunately, course and program assessments are often misunderstood. They can seem like an end unto themselves, an add-on, or an unwelcome imposition upon everyone's valuable time. We might even feel like they're just a hoop the administration is making us jump through, taking us away from our real work. These perceptions are untrue and unnecessarily negative. Instead, assessment is a normal part of what we do as educators – a routine and purposeful activity essential to our identity as a high-quality university.

Furthermore, Hong and Moloney (2020) caution that we should reject false binary views that assessment is either an exercise in compliance or the foundation of continuous improvement. Consider this metaphor. Many people visit their physician for a yearly physical examination, which often includes routine medical tests. Sometimes, those tests reveal only that the patient has no health conditions that need treatment. Other times, the physician notes that the tests show a problem that requires further treatment through prescription medications, additional testing, or medical interventions such as surgery. A physician would never look at a patient's test results and say, "The heart scan showed you have a blockage in two of your coronary arteries. I'll see you again next year." Failing to pursue additional treatment for a life-threatening condition could be considered medical malpractice.
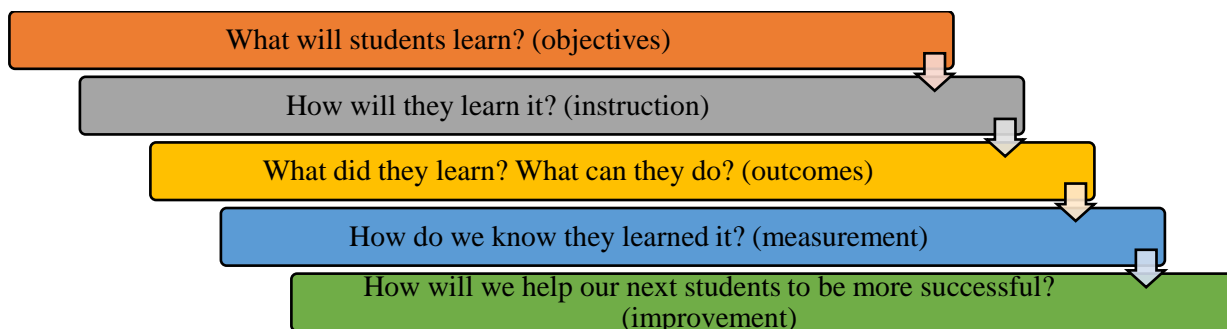
Even if the test results and physical examination all indicate the patient is normally healthy, physicians usually suggest ways to improve their overall health, such as eating more fruit and vegetables, engaging in more physical exercise, or getting more sleep. Patients then have a choice, and they can ignore the physician's advice until their next annual physical or adopt the recommended lifestyle changes and improve the quality of their lives.

Educators represent both the physician and the patient in this metaphor. Like physician, educators must pursue improvement when our assessments reveal that students are not as successful as expected. We reach for an even higher standard of excellence when we establish a culture of assessment that embraces opportunities for improvement even when the results meet expectations (Wilton & Méthot, 2020), just as the patient in the metaphor can adopt a healthier lifestyle instead of ignoring the doctor's advice until next year's appointment.

COMPONENTS OF ASSESSMENT

Assessment involves five components: objectives, instruction, outcomes, measurement, and improvement. We can understand these as answers to five questions.

FIGURE 1
COMPONENTS OF ASSESSMENT

What will students learn? (objectives)

How will they learn it? (instruction)

What did they learn? What can they do? (outcomes)

How do we know they learned it? (measurement)

How will we help our next students to be more successful? (improvement)

These questions combine to form the assessment-improvement cycle.

FIGURE 2
ASSESSMENT-IMPROVEMENT CYCLE
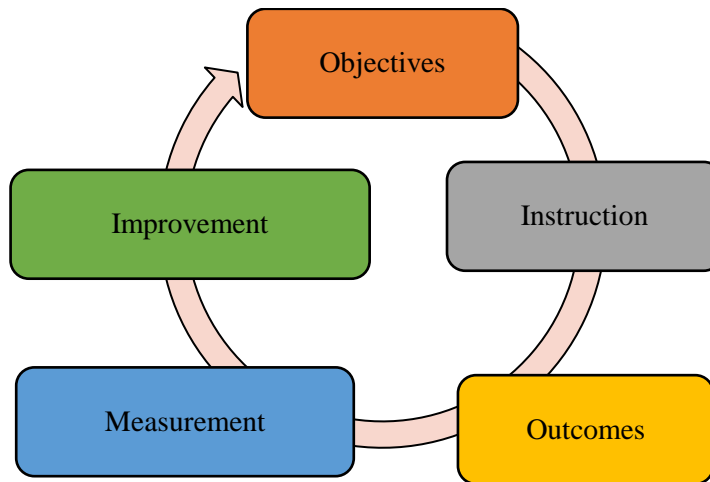
Next, let's examine these components to gain a better understanding of how assessment fits into the work we do as educators.

Backward Design

Although many readers may be tasked with incorporating assessment into an existing course, it may be worthwhile to take a step back and examine the process of designing a course with assessment in mind, sometimes called backward design. The typical process of course design often begins by creating a syllabus, then planning lecture topics and other instructional activities, and finally creating assessments that will test students' learning of the course content. Backward course design "begins with the end in mind" (Covey,1989, 2020), starting by identifying the learning outcomes students are expected to achieve by the end of the course, then planning how we will assess those outcomes, what instruction will be needed to succeed on the assessment, and what materials or resources will support that instruction, finally combining all these components into a syllabus (Mackh, 2018).

FIGURE 3
BACKWARD COURSE DESIGN FLOW CHART

Faculty developing assessments for an established course with a pre-existing syllabus, lectures, and instructional materials can still consider this model even though they start in the middle of the process. Either way, we need to answer three simple questions: What do we want students to know or be able to do when the course is finished? (outcomes) How will we know students have learned or can do these things? (assessments) How will we ensure they learn them? (instruction)

Objectives and Outcomes

Perhaps nothing in assessment is as poorly understood as the difference between objectives and outcomes. These terms have similar meanings, but they are not synonymous, nor are they interchangeable.

Unfortunately, the accepted meanings of these two terms are not standardized, either. Institutions of higher learning use these terms inconsistently and publish widely varied explanations of how faculty should employ them when creating statements about intended student learning.

Each institution decides how it will set learning goals, measure expected results, and what terminology or formulas will be used for these statements. Some institutions don't use the terms objectives or outcomes, substituting words like goals, results, competencies, or proficiencies. The words we choose are less important than establishing a common understanding of which terms the institution will use and what those terms mean since we cannot turn to any national standard, common vocabulary, or pre-determined formula that everyone uses for this purpose across all of higher education.

In general, the word "outcomes" refers to what students should know or be able to do at the end of a course or program. However, "objectives" can be applied in various ways, including differentiating between what students learn in courses as opposed to what they learn by the end of a degree program, describing the tasks to be accomplished to achieve an outcome, or when designating the components of an overall learning outcome (Suskie, p. 41).

> Definitions adapted from Suskie, pg. 40-41 and informed by standards used at institutions including the University of Wisconsin, Indiana University/IUPUI, Stanford University, and Iowa State University, among others.

Although it might be better to use the words "goals" and "results" instead of two easily confused words that both begin with the letter "o," in this document, we will continue to use the words objectives and outcomes because they remain the most common vocabulary of assessment even though institutions employ them in vastly different and even contradictory ways.

For our purposes, we will first clarify that objectives and outcomes differ in their intended purpose.

- The purpose of an **objective** is to INFORM students what they will learn in the course or program.
- The purpose of an **outcome** is to MEASURE what students have learned and can do due to their experiences in the course or program.

In other words, **objectives tell students what faculty will teach**, and **outcomes tell faculty what students have learned**. We need both statements because we must state the learning goals (objectives) for our courses and programs AND measure the results (outcomes) of the educational experiences we deliver to students.

Because accrediting organizations expect institutions to differentiate between objectives (goals) and outcomes (results), we should be very intentional about how we use the word "will." This word points to the future, indicating something we expect to happen but has not yet occurred.

Outcomes must be measurable because they indicate what students have learned or can do as a result of their learning. We cannot measure something that *will* happen in the future, which is why it's inadvisable to use the word "will" in outcomes statements, even though the phrases "students will…" and "students will be able to…" frequently appear in other institutions' learning outcomes or publications about writing learning outcomes.

Perhaps it would help to conceptualize these terms as in Figure 4: the objective is like a target on an archery range. We know **the goal** is to hit the bullseye, but we can't judge their success until after an archer shoots an arrow. The outcome happens after the arrows have been shot, and we see **the result** – where they landed on the target. Assessment of the archer's skill happens when we add the score of all the arrows.

FIGURE 4
ARCHER AT THE READY

FIGURE 5
MEASURABLE SCORE

Figure 4 gives us a way to understand objectives. The archer is poised to shoot the arrow at the target. We may *presume* the archer **will** hit the target when they shoot the arrow. We may *believe* the archer **can** hit the target – that is, they possess the ability or competency to shoot the arrow accurately. However, we cannot *assess* the archer's skills before they release the arrow because we have nothing to measure yet.

Figure 5 demonstrates an outcome and its assessment. The placement of the arrows on the target provides evidence allowing us to measure the archer's skill.

Expressing these concepts as objective and outcome statements could look like this:

- **Objective**: the archer will score 45 or more points when shooting a set of six arrows at a target placed at a distance of 70 meters.
- **Outcome**: the archer scored 45 or more points after shooting a set of six arrows at a target placed at a distance of 70 meters (Venkat, 2023).

In other words, the primary difference between objectives and outcomes is whether they express a goal that *will be* achieved in the future or a result that *has been* achieved in the present.

Objectives often support outcomes by breaking instruction into steps or components. An outcome for a first-year writing course might be "Compose a persuasive essay adhering to the norms and standards of college-level English." Objectives leading to that goal could include:

- Students will utilize correct grammar, punctuation, and vocabulary appropriate to college-level writing.
- Students will formulate persuasive arguments based on valid evidence.

- Students will identify sources of information appropriate to different writing tasks.

Each objective supports the outcome, helping the faculty member organize and deliver instruction that facilitates the goal of writing a high-quality persuasive essay.

Writing High-Quality Outcomes

Writing student learning outcomes need not be onerous if we're prepared with the right information. The materials in the table below might be helpful in this task (Mackh 2018). Although we're focusing primarily on course learning outcomes, information is also included for the program level because courses and programs must align.

TABLE 1
INFORMATION SOURCES FOR PROGRAM AND COURSE LEARNING OUTCOMES

Program Learning Outcomes	Course Learning Outcomes
- Disciplinary accreditation standards - Professional or disciplinary norms - Institution's mission and vision statements - Degree program requirements - Professional licensure or certification requirements for graduates	- Learning outcomes for the program in which the course is located - Course syllabus - Syllabi from other faculty teaching sections of the same course - Syllabi from other courses in the program

First, program learning outcomes should reflect expectations for entry-level professionals in the program's discipline. We can find information about these expectations from sources such as disciplinary accrediting agencies such as ABET, CAEP, AACSB, or CSWE, among many others, which establish standards or criteria for program accreditation. (Programs that do not currently hold such accreditation could still examine these agencies' standards as a reference for professional expectations in their respective fields.)

Furthermore, program learning outcomes should mirror the standards or criteria the program must meet to maintain disciplinary accreditation. Some of these accreditors set dozens of criteria, but we do not have to reproduce them in our program learning outcomes. It may be helpful to group them into conceptual categories to simplify the process of program assessment. Programs may also want to look to professional organizations or associations to see how their standards or expectations could inform their program's learning outcomes. Finally, we should ensure that our programs' outcomes support our institution's mission, vision, and values, which all institutional accrediting organizations check when conducting their investigative processes.

Student learning outcomes for the courses within these programs should align with, support, and map onto the program learning outcomes and reflect the most important learning students should achieve by the end of the course. Choosing the outcomes for a course will depend on whether the faculty member is the only person teaching the course or if several faculty members teach sections of the same course because outcomes should be the same between different sections taught by different faculty members. It's also advisable to examine syllabi for the courses the students must take before and after the course for which the outcomes are being written to ensure any duplication is purposeful. The courses show a logical progression toward a degree. Faculty teaching a general education course should consult the institution's general education outcomes (sometimes called institutional outcomes or university outcomes) so that their course outcomes align appropriately.

Having gathered and identified the relevant information, the next step is to select the "big ideas," or overarching concepts, skills, or competencies students should take from the course. Although we could find examples of institutions, programs, and courses that provide everything from one to dozens of learning

outcomes, we should remember that accreditation criteria require us to assess every learning outcome. Fewer than three such statements might not provide a comprehensive enough picture of student learning, but more than eight statements can become cumbersome to assess. Therefore, it's advisable to limit the number to only the most essential aspects of what we expect students to know and be able to do at the end of a course.

After deciding on our "big ideas," the next step is carefully wording the student learning outcome statements using specific and measurable language. Choosing vague terms makes assessment more difficult, less accurate, and less actionable.

Consider these hypothetical outcomes for a Speech course.
- Understand the modes of communication and settings in which communication occurs.
- Observe how people in different contexts interact.
- Learn how communication skills are acquired.
- Examine how communication shapes societies and cultures.

How should we assess whether students "understand"? How do we know if they have "learned"? What does "examine" mean in this context? How do we judge whether students have "observed"? These verbs are too vague to be meaningful. With some slight modification, we can alter these outcomes to be more specific and more conducive to assessment.
- Apply modes of communication appropriate to various settings.
- Compare and contrast communication practices among various populations.
- Explain the process of communication skill acquisition.
- Describe how communication shapes societies and cultures.

See *Appendix 1: Definitions and Correlations - Bloom's Taxonomy* for suggestions of specific words aligned with the levels of Bloom's Taxonomy.
Appendix 2: Formula for Objectives and Outcomes is a helpful resource for formulating these statements.

These outcomes express the same concepts as the first set of statements. Still, the specificity of their action verbs suggests how each one might be assessed, as well as describing the skill or knowledge students are expected to acquire.

Learning outcomes should describe only students' learning in a course or program. Certainly, we have goals, aspirations, or expectations for our courses or programs in addition to student learning, but statements like the following should not be included among our learning outcomes.
- Students earning a BA in History qualify for admission to prestigious MA in History programs.
- Alumni find employment within the field of Engineering within one year of graduation.
- Raise student enrollment by 10% per year.
- Increase the program's budget by 20% to pay for new instructional materials and equipment.

Although these are worthwhile aspirations, they do not directly relate to student learning and should be mentioned separately in the assessment report.

Planning Instruction to Align With Outcomes

Returning to backward design, Ronald Carriveau (2016) suggests that faculty should use a "topic planning guide" to align student learning outcomes with what they plan to teach. Table 2 shows a modified excerpt from a plan for a history course.

Carriveau offers further information and resources for aligning instruction and assessment with outcomes, including templates for writing exam questions, writing multiple-choice items, creating grading rubrics and using them to score students' work, and developing an overall assessment blueprint for a course. Faculty new to course design and those who want to improve the alignment of their teaching with assessment might find this book a very helpful resource.

TABLE 2
SAMPLE TOPIC PLANNING GUIDE EXCERPT

Learning Outcome	Topics	When to Teach	Clarifying Statements
Read primary documents critically and analytically	Primary documents	Weeks 1-2 and ongoing throughout the semester	Analyze and interpret primary documents Employ primary documents
Demonstrate understanding of facts, chronology, causal factors, and consequences	Reconstruction Industrialism Expansionism World War II	Weeks 3-4 Weeks 5-6 Weeks 7-8	Major events Cause and effect policies World War I Mobilization New World Holocaust

Aligning Course and Program Outcomes

Course learning outcomes, often called Student Learning Outcomes (SLOs), should be specific to each course while aligning with or mapping onto Program Learning Outcomes (PLOs). We should see increasingly high expectations reflected in our SLOS from introductory level to upper-division courses, noting if the course introduces the PLO, reinforces the PLO, or measures students' mastery of the PLO (usually connected to program assessment).

Table 3 is a simplified excerpt from a curriculum map indicating the courses in which a program's learning outcomes are taught. An "I" indicates the outcome is introduced (shown in yellow), "R" means the outcome is reinforced (shown in green), and "M" shows the courses where mastery is expected (shown in blue).

TABLE 3
SAMPLE CURRICULUM MAP

Course Number	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5
101	I				
110		I		I	
150					I
200	R	R			
210				R	R
240	R	R			
270					
310	R			R	
360	R	R			R
390		R		R	
400	R				
420		R		R	
460	M	M			
480				M	M

A curriculum map can reveal gaps in a program or course's alignment, shown in orange in Table 3. This example shows that PLO 3 is never introduced, reinforced, or mastered in the program's courses.

Likewise, the 270 course does not align with the program's five PLOs. We can also note that PLO 1 is covered twice as often as PLO 5. Establishing PLOs, deciding where they are introduced, mastered, and reinforced throughout the program's degree plans, and curriculum mapping should be collaborative efforts in which all members of a program's faculty participate.

Individual faculty establish SLOs for their courses, but no faculty member teaches in isolation. Determining SLOs and PLOs is best when it becomes a collaborative effort because every educator's work exists within the larger context of a program. Students should be confident that their learning experiences in each course will lead them to master the learning outcomes conveyed by our programs' descriptions.

Every course in the program should align with one or more PLOs. When an existing PLO does not align with any course SLOs, it should be modified to ensure alignment with what faculty teach in the program. It should be eliminated because no one is teaching it. Likewise, if a course SLO does not align with one of the PLOs, we should reconsider including it in our outcome statements. We can still teach content not directly related to the course or program's learning outcomes, but we may not want to include it among the criteria on which we base our course assessment.

Assessment and Measurement

When we consider how to determine whether students have learned what we taught, we should differentiate between assessment and measurement. Assessment is the step in which we gather information. Measurement is "situating data from an assessment in a quantitative framework to characterize the evidence the observations provide for the interpretations and inferences the assessment is meant to support," according to Robert Mislevy (2018).
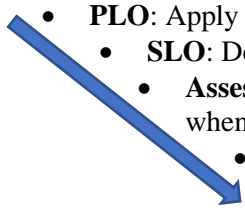
In general, PLOs are assessed at the end of the student's journey through the program, often in a capstone course, culminating learning experiences such as a written thesis or exhibition, or the results of a standardized examination such as those for professional certification or licensures like the NCLEX in Nursing, the Ohio Educator License Exam for teacher certification, or the Fundamentals of Engineering (FE) exam for engineering students. As mentioned earlier, the decision of how to assess PLOs should be a collaborative effort by the program's faculty. These assessments should align with professional norms and disciplinary accreditation standards, where applicable.

Each educator selects or creates SLO assessments for their courses, usually drawing from existing elements of our courses that we already use to evaluate students' learning, such as assignments, projects, or exams. Again, when multiple faculty members teach different sections of the same course, they should collaborate to create SLOs and choose assessments that will be consistent across all iterations of the course.

We should note two caveats regarding how we will measure students' achievement of our course outcomes. Faculty members are responsible for determining a course grade, and most faculty also administer a final exam, but neither of these routine practices can serve as SLO assessments. Overall course grades are affected by factors unrelated to the course's outcomes, such as attendance, class participation, or penalties for late work. Final exam grades are too broad to accurately assess individual SLOs, although selected exam questions aligned with an SLO could be an appropriate assessment tool (Walvoord, 2018).

Good assessment practice involves four parts: (1) the overall **program learning outcome** aligned with (2) our **student learning outcome** for the course, (3) the **assessment** we will use to measure our students' learning, and (4) a **measurement tool** such as a rubric or other scoring mechanism. Consider this hypothetical example from a 200-level Oral Communication course in a Speech and Communications program. Here we can track the alignment of the student's learning from the Program Learning Outcome all the way down to the rubric used to grade the speech the student delivers in class (Allen, 2021).

Furthermore, our assessment plans should specify the **metric** we will use to measure students' achievement (the measurement tool), the **means** by which it is assessed (the assessment), and the **criteria** that define the level of achievement students must meet to be considered successful in having learned what was required (meeting the program or course outcomes).

- **PLO**: Apply modes of communication appropriate to various settings.
  - **SLO**: Demonstrate poise when speaking to groups.
    - **Assessment**: Student delivers a prepared speech to the class, graded (in part) on poise when speaking to the group.
      - **Measurement Tool**: Rubric used to score the student's speech, with a specific criterion for poise when speaking.

In addition, we should be mindful of the timeline for measurement. Course assessment occurs according to an established cycle, such as at a university that assesses each course every three years. Faculty should know this schedule and know when their course will be assessed. However, the three-year cycle does not mean we should pause our course assessment efforts in the two years between assessments. Data acquisition should occur each time we teach the course because the more data we can gather, the more valid and reliable our findings will be, giving us a richer and more detailed picture of student learning.

Here's a hypothetical example from an Accounting course that might help show the full set of components.

- PLO 2: Apply foundational principles of financial and managerial accounting.
- SLO 3: Calculate compound interest accurately.
- Metric/Means: Final exam questions #14 and #15
- Criteria: 85% of students will answer the exam questions correctly
- Timeline: Accounting program assessment next occurs in 2024-2025.

Here's another example from a course in a Speech and Communications program.

- PLO 3: Demonstrate skills for effective workplace communication.
- SLO 1: Develop and deliver speeches demonstrating effective verbal and nonverbal communication techniques.
- Metric/Means: Sections of rubric for persuasive speech evaluating verbal and nonverbal effectiveness.
- Criteria: 80% of students will score 3 or better on this section of the persuasive speech rubric.
- Timeline: Speech and Communication program assessment next occurs in 2025-2026.

And one more example from a course in a Healthcare Management program.

- PLO 1:Collect, analyze, and record data on patient health status using methods consistent with recognized national standards.
- SLO 4: Differentiate between various types of healthcare facilities and their records.
- Metric/Means: "Providers' Roles" Assignment
- Criteria: 75% of students will achieve a grade of 75% or above on the assignment.
- Timeline: The Healthcare Management program will be assessed in 2023-2024.

Faculty who understand the alignment between PLOs and SLOs, know how they will assess the SLO and the target criteria by which they can judge their students' achievements, and are aware of when the program assessment will occur are better prepared to manage course assessment successfully.

Measurement Examples and Tools

An assessment itself should be suitable to the discipline and content of the course, align with one or more of the course outcomes (SLOs), and produce a measurable result. The same assessments we use to measure students' learning leading to course grades can serve double-duty as our course assessments, including assignments, presentations, projects, essays, portfolios, exhibitions, speeches, problem sets, and performance tasks – the list is virtually endless.

Many student artifacts (anything produced by a student demonstrating their learning) can be measured with a rubric or checklist, yielding a numerical score useful for course assessment and routine grading. The backward design lends itself well to this purpose because we establish our rubric criteria when we create the assessment to ensure everything is aligned. When working from assignments that have already yielded

student artifacts, we face a more difficult task in aligning our established expectations and grading criteria with our SLOs, so it's best to create alignment from the beginning whenever possible.

Faculty commonly hold multiple expectations for their students' work. Just as we can teach more than is stated in our SLOs, our grading criteria can include more than just the aspects of an assignment that we'll use to assess one of our SLOs. Let's consider a rubric that might be used to grade the "Providers Roles" assignment from the previous example of a Healthcare Management course.

TABLE 4
PROVIDERS ROLES GRADING RUBRIC EXAMPLE

Criteria	4 - Exceeds Expectations	3 - Meets Expectations	2 - Approaching Expectations	1 - Does Not Meet Expectations
1. Differentiates between various types of healthcare facilities	Explained similarities and differences between more than the five types of healthcare facilities outlined in the textbook, using specific real-world examples	Explained differences between the five types of healthcare facilities outlined in the textbook, using specific real-world examples	Explained differences between fewer than five types of healthcare facilities – or – did not provide specific examples	Listed different types of healthcare facilities but did not explain differences between them; did not provide examples
2. Explains how recordkeeping varies between types of healthcare facilities	Thoroughly explained the similarities and differences between types of records kept at each type of healthcare facility and provided specific and detailed examples for each one	Provided a list of recordkeeping tasks common to the five types of healthcare facilities with a brief explanation of their differences.	Listed different types of records kept with minimal explanation of their differences	List of records is incomplete or inadequate; no explanation of differences between types of records kept
3. Follows formatting guidelines	Assignment is error-free and follows all formatting guidelines	Assignment follows formatting guidelines and contains few errors in punctuation, capitalization, etc.	Assignment does not follow all formatting guidelines -or- contains many errors.	Assignment does not follow formatting guidelines and errors prevent reader understanding of the paper's contents
4. Submits paper by the deadline	Paper is submitted more than one day before the deadline	Paper is submitted on the deadline	Paper is submitted up to 24 hours after the deadline	Paper is submitted more than 24 hours after the deadline

In this example, Criteria 1 and 2 align with SLO 4: Differentiate between various healthcare facilities and their records. However, the student's grade is equally influenced by whether they followed formatting guidelines and submitted the paper by the deadline, neither of which directly relates to the student's demonstration of learning.

Two corrections would help to optimize this rubric. For the course grade, we can weight Criteria 1 and 2 so that they occupy most of the assignment grade. We can also calculate a partial or sub-score for evaluating SLO 4, omitting Criteria 3 and 4 before determining the student's overall assignment grade. Note that the "does not meet" category still holds a point value because a student who does the assignment deserves a score even if their work was not up to the expected standard. The adjusted rubric below includes only the point values, not the performance descriptions.

TABLE 5
ADJUSTED GRADING RUBRIC

Criteria	Exceeds	Meets	Approaching	Does Not Meet
1. Facility types	45-41	40-36	35-31	30 or fewer
2. Record types	45-41	40-36	35-31	30 or fewer
SLO score [points earned divided by maximum of 90 points possible = percentage score]				
3. Formatting	5	4	3	2-1
4. Deadline	5	4	3	2-1
Assignment Score [points earned divided by maximum of 100 points = assignment grade percentage]				

Using this adjusted rubric to grade the assignment has the usual advantages associated with rubrics, such as ensuring fairness and transparency in evaluating students' work. It also provides a simple means of gathering data for course assessment without adding anything extra to the faculty member's workload. All that's needed is to compile a list of students' SLO sub-scores and save it to use when writing their course assessment report.

We can apply the same idea to most of our common grading tasks by differentiating between the criteria directly related to our learning outcomes and those reflecting other priorities like following directions, punctuality, or participation. Once gathering data for course assessment becomes part of our grading routines, the process becomes much less tedious.

Let's consider another example from a final exam. In the earlier illustration from an Accounting course, the SLO relating to calculating compound interest is assessed with questions #14 and 15 on the final exam. Gathering data on these questions will depend on how the exam was administered. If it was a paper-and-pencil exam, the professor could keep a notepad at hand while scoring the exams and simply tally how many students answered each question correctly. On the other hand, exams administered through the Learning Management System might be graded automatically. In this case, the professor might have to page through students' results in the LMS to tally how many students answered these questions correctly. All that remains is to find a basic percentage by dividing the number of correct responses by the number of students who completed the exam, yielding the score to judge this SLO. Again, gathering this data when we grade the exam saves much effort and frustration when it's time to write the course assessment report.

Now let's look at some common errors in course outcomes assessment. Can you spot the mistakes in the following table? (Examples adapted from Allen, 2021)

TABLE 6
COMMON ERRORS

Course SLO	Means of Assessment	Criteria for Success
1. Demonstrate…	Final Exam	80% of students will earn 80% or better on the final exam.
2. Compare….	Final Exam	80% of students will earn 80% or better on the final exam.
3. Analyze…	Final Exam	80% of students will earn 80% or better on the final exam.
4. Explain…	Final Exam	80% of students will earn 80% or better on the final exam.

If you noted that every SLO's assessment for this course rests on students' overall grades on the final exam, you're correct. Our assessments can use **selected questions** from the final exam that **correlate** with our SLOs, but the exam shouldn't be our only measure. We can also consider papers, projects, performances, assignments, and other tools. Surveys, reflective essays, and other qualitative measures can be used in combination with quantitative measurement.

Now let's consider a better version of measuring the same SLOs.

TABLE 7
IMPROVED MEASUREMENT EXAMPLE

Course SLO	Means of Assessment	Criteria for Success
1. Demonstrate…	Term paper 1; Rubric criterion #5	80% of students will score a 3 or higher on this criterion.
2. Compare….	Final Exam Questions #25-30	80% of students will answer these questions correctly.
3. Analyze…	Assignment 3 "Analysis of …" paper	80% of students will earn 80% or better on the paper.
4. Explain…	Group presentation, Rubric criterion #4	80% of students will score a "meets" or "exceeds expectations" on the rubric criterion.

This example is better because the assessment means are varied instead of relying only on the final exam. The metrics and criteria still uphold the 80% proficiency level desired, but instead of an overall exam grade, the criteria are tailored to the specific assessments.

Success Criteria

Once we've decided on our outcomes, the means of assessment, and the criteria for success, we must still collect, analyze, and report the data. The next chart replicates the preceding version with an additional column showing the summary of assessment findings based on the collected data.

TABLE 8
SUCCESS CRITERIA AND FINDINGS

Course SLO	Means of Assessment	Criteria for Success	Summary of Findings
1. Demonstrate…	Term paper 1; Rubric criterion #5	80% of students will score a 3 or higher on this criterion.	73% of students scored a 3 or above on this criterion.
2. Compare….	Final Exam Questions #25-30	80% of students will answer these questions correctly.	87% of students answered these questions correctly.
3. Analyze…	Assignment 3 "Analysis of …" paper	80% of students will earn 80% or better on the paper.	65% of students scored "meets" or "exceeds expectations" on this criterion.
4. Explain…	Group presentation, Rubric criterion #4	80% of students will score a "meets" or "exceeds expectations" on the rubric criterion.	95% of students earned a grade of 80% or higher.

We can see that students met the success criteria for SLO 2 and 4 but did not meet the success criteria for SLO 1 and 3. However, noting these results is not the end of the course assessment process. To maintain accreditation, we must also provide evidence that we actively seek to improve our courses and programs based on the results of our assessments. In other words, assessment is not a stand-alone activity, nor is it something we do only to meet a requirement – it's the central component of a multistep process leading to continuous improvement of student learning. Therefore, the next step once we have determined the results that our students achieved on our assessments is to decide how we will use those results to improve our courses.

In general, we should see between 75% and 90% of students meeting the target criteria we've set. If more than 90% of students meet the criteria, it shows us that we could increase the course's challenge or rigor in this area. If fewer than 75% of students meet the criterion, we might explore improving instruction, providing supplementary resources, or offering other learning support.

Improvement

When speaking of improvement, we usually consider gains occurring from one semester or year to the next, so these normally involve summative assessments occurring at the end of a learning process and resulting in a substantive grade. Formative assessments occur during a learning process and inform students and faculty about ongoing progress, offering opportunities for mid-course changes or improvements leading to better achievement of the course's learning outcomes.

If we align our entire course with the student learning outcomes, we have a greater chance of ensuring student success and can clearly see where improvements can occur. The results of our formative assessments, such as a midterm exam or a quiz at the end of a unit, usually don't count toward the scores calculated for our course assessments. Still, they do show us where we're doing well and where we need to improve our teaching to support our students' success. Creating a course map might be a useful strategy. Build a table or spreadsheet listing the SLOs along one axis and instructional activities and assessments along the other. Then check off each item under the corresponding SLO, indicating whether it introduces the outcome (I), reinforces it (R), or assesses it for mastery (M), much the same as the program mapping activity we considered earlier. Table 9 is a partial example of what this might look like.

TABLE 9
PARTIAL COURSE OUTCOME MAP

	SLO 1	SLO 2	SLO 3	SLO 4
Lecture 1	I		I	
Lecture 2		I		I
Lecture 3	R	R		
Group Activity 1			R	I
Assignment 1	R			
Quiz 1		R	R	
Lecture 4				R
Lecture 5				
Case Study 1				
Assignment 2	R			
Quiz 2			R	
Midterm Exam	M			M

Noting patterns that emerge during this exercise can help us determine where we're over-emphasizing an outcome or where more instruction is needed. For example, lecture 5 and Case Study 1 do not map onto any of the SLOs (indicated in orange). It's acceptable to teach content beyond the SLOs, but it's good to recognize how much of what we are doing is unconnected to our stated learning outcomes.

Not all actions we might propose in response to the data we gather will meet the criteria for continuous improvement of student learning. Table 9 replicates Table 8, adding a column for Improvement Activities. Can you spot the common errors?

TABLE 9
IMPROVEMENT ACTIVITY ERRORS

Course SLO	Means of Assessment	Criteria for Success	Summary of Findings	Improvement Activities
1. Demonstrate…	Term paper 1; Rubric criterion #5	80% of students will score a 3 or higher on this criterion.	73% of students scored a 3 or above on this criterion.	Modify the rubric criterion description.
2. Compare….	Final Exam Questions #25-30	80% of students will answer these questions correctly.	87% of students answered these questions correctly.	Target met. Continue to monitor.
3. Analyze…	Assignment 3 "Analysis of …" paper	80% of students will earn 80% or better on the paper.	65% of students scored "meets" or "exceeds expectations" on this criterion.	Provide additional instruction.
4. Explain…	Group presentation, Rubric criterion #4	80% of students will score a "meets" or "exceeds expectations" on the rubric criterion.	95% of students earned a grade of 80% or higher.	Target met. Continue to monitor.

Unfortunately, all these action steps are incorrect. In SLO #1, changing the rubric might be necessary, but this is not about improving student learning.

Although criteria for success were met or exceeded in SLO #2 and #4, "continue to monitor" does not reflect efforts to improve student learning. Conscientious faculty routinely adjust their pedagogical practice and curriculum even when students meet expectations. Reporting these improvements helps our institution maintain accreditation by demonstrating continuous improvement.

SLO #3 shows an appropriate step for improving student learning but is too vague. An appropriate statement would describe what additional instruction would be provided, such as, "Provide additional instruction on analytical techniques and create a student resource guide for written analysis."

Now let's consider a better attempt at planning for improvement.

TABLE 10
CORRECT IMPROVEMENT ACTIVITIES

Course SLO	Means of Assessment	Criteria for Success	Summary of Findings	Improvement Activities
1. Demonstrate…	Term paper 1; Rubric criterion #5	80% of students will score a 3 or higher on this criterion.	73% of students scored a 3 or above on this criterion.	Provide additional instruction in [SLO 1] and modify rubric criterion #5 to ensure clarity.
2. Compare….	Final Exam Questions #25-30	80% of students will answer these questions correctly.	87% of students answered these questions correctly.	Raise the level of challenge by providing supplementary instruction in [SLO 2].
3. Analyze…	Assignment 3 "Analysis of …" paper	80% of students will earn 80% or better on the paper.	65% of students scored "meets" or "exceeds expectations" on this criterion.	Provide additional instruction in analytical techniques associated with [SLO 3] and create a student resource guide for written analysis.
4. Explain…	Group presentation, Rubric criterion #4	80% of students will score a "meets" or "exceeds expectations" on the rubric criterion.	95% of students earned a grade of 80% or higher.	Incorporate more challenging and rigorous instructional materials in Unit [X] [relating to [SLO 4].

Even when our students meet or exceed our targets, we can still find ways to improve. The revised examples in Table 10 show how this might be achieved.

Faculty routinely improve their curriculum and instruction. They increase the challenge or rigor when they see that students are easily mastering a portion of the course. They provide supplementary instruction or additional resources where students struggle to understand the course content. They adjust their grading

rubrics and exams to ensure clarity. Course assessment incorporates these everyday activities in our reporting to ensure we receive recognition for our good work. Improvement is not intended to be something "extra" layered on our already-overfull plates. It's how we demonstrate to our most important external audiences – our accrediting agency and our community, alumni, prospective students, and their families – that we care about our work and always strive to increase our students' success.

BUILDING A CULTURE OF ASSESSMENT

When our participation in assessment moves beyond merely fulfilling a burdensome requirement to becoming integral to our work as educators who conscientiously pursue continuous improvement of teaching and learning, we will have created a true culture of assessment. Kimberly Walker offers the "Culture of Assessment Matrix" (2020), outlining levels beginning with Currently Unaddressed (0 points) to Fully Integrated (4 points), showing how institutions can measure their progress toward this goal. The following modified excerpts demonstrate where an institution might be on the matrix before beginning to build a culture of assessment (Currently Unaddressed) and after their efforts are successful in integrating best practices for assessment leading to widespread engagement in continuous improvement (Fully Integrated).

- Currently Unaddressed
  - <u>Administration</u>: no campus-wide initiatives or communications regarding continuous improvement or the need to utilize data in decision-making.
  - <u>Faculty</u>: no campus-wide efforts to involve faculty meaningfully in institution-level assessments required by external accreditors.
  - <u>Resources</u>: no ongoing budgetary or personnel support for assessment.
  - <u>Technologies</u>: non-existent or cumbersome informational technologies to support data or continuous improvement efforts; lack of support by IT professionals
  - <u>Overall Impression</u>: assessment is solely the responsibility of staff in institutional effectiveness, assessment, or institutional research; faculty, staff, and academic administrators have minimal involvement in assessment.
- Fully Integrated
  - <u>Administration</u>: executive leadership communicates clear expectations for continuous improvement; institution-wide emphasis on continuous improvement for academic and non-academic units; data utilized for resource allocation and institutional decisions; focus remains on improvement, not external requirements.
  - <u>Faculty</u>: faculty lead all academic assessment processes, are supported through resource allocation (stipends, professional development), and are officially recognized for their assessment work.
  - <u>Resources</u>: assessment is supported by continuous budget allocation; professional development available for all academic and non-academic units; dedicated personnel who are experts in assessment lead fully staffed assessment offices.
  - <u>Technologies</u>: stakeholders have access to up-to-date, accurate, user-friendly data; dedicated IT professionals support assessment and data systems appropriate to the scope and types of assessment taking place in the institution.
  - <u>Overall Impression</u>: personnel in assessment offices support but do not drive assessment efforts; best practices for continuous improvement are prevalent across campus.

A culture of assessment goes beyond simple compliance with accreditation requirements, adherence to governmental mandates, or acknowledgment of external expectations for accountability. It reflects a core belief in the importance of student success and a commitment to the unceasing pursuit of excellence in teaching and learning. Perhaps most importantly, a culture of assessment shines a spotlight on the good work faculty already do, revealing our achievements as educators and disciplinary professionals who provide an optimal educational experience for our students.

Assessment ceases to be an unwelcome imposition when faculty members step up to be part of decision-making processes within a collaborative environment of networked governance. Their engaged participation in the course and program assessment activities lends authority and authenticity to their contributions.

As with almost everything in life, we may not have complete freedom to choose whether or not we will do something, but we have total control over how we perceive the task before us and our resulting experience of completing it. Consider the differences between two attempts at completing the sentence, "I ____ to assess my course because _____ ."

> "I have to assess my course because the university is making me do it."
> "I want to assess my course because I'm eager to see how I can make it better and support students' success."

The first statement shows resentment and disengagement. The second reflects agency and autonomy. Yes, we have to assess our courses, programs, and institution because our institutional accreditor requires us to do so, and we must maintain our status as an accredited institution if we want to keep the university's doors open. However, each of us can transform this requirement into an opportunity by adopting a positive attitude that empowers engaged participation.

Motivational expert Zig Ziglar said, "Your attitude, not your aptitude, will determine your altitude." Assessment and accreditation might not be the most exciting or entertaining aspects of our jobs (except for those of us who love working with data), but seeing how our actions transform our students' learning and elevate our university's standing among its peer institutions makes our efforts all the more worthwhile. Working together with an enthusiastic outlook that views everything we do as educators through the lens of supporting students' success will transform our work lives and lift our institution to greater heights.

KEY TAKEAWAYS

- Faculty share responsibility for course and program assessment, which support institutional accreditation and continuous improvement.
- Assessment involves five key questions:
    - What will students learn? (objectives)
    - How will they learn it (instruction)
    - What did they learn? (outcomes)
    - How do we know they learned it? (measurement)
    - How will we help our next students to be more successful? (improvement)
- Objectives are informational statements describing what students will learn in a course or program. Outcomes are measurable statements describing what students have learned in a course or program.
- Course-level outcomes and assessments should support and align with program-level outcomes and assessments, and both should support the institution's mission, vision, and values.
- Adopting a model of "backward" course design that first specifies the course's learning outcomes, then determines how they will be assessed, followed by planning the instruction should precede the assessment and selection of relevant materials or resources to support that instruction helps us create courses that maximize students' achievement of the outcomes.
- The assessment measures and metrics we employ can be woven into our courses and serve a dual purpose in grading students' work and assessing our course learning outcomes.
- A culture of assessment facilitates continuous improvement by making assessment a routine aspect of our professional lives and a valued tool in striving toward curricular, pedagogical, and institutional excellence.

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APPENDIX 1: DEFINITIONS AND CORRELATIONS – BLOOM'S TAXONOMY

Knowledge = information about a subject gained through study or experience; the state of knowing about or being familiar with something.

Literacies = acquisition of sufficient knowledge and ability to produce a desired outcome, occurring within various areas. Examples include:
1. Digital Literacy: the range of knowledge and skills necessary to navigate an increasingly digital world.
2. Media Literacy: the ability to access, analyze, evaluate, create, and act using all forms of communication.
3. Disciplinary Literacy: reading, writing, and critical thinking abilities specific to different disciplines.
4. Civic Literacy: knowledge of how to actively participate and effect change in the local community and society.
5. Multicultural Literacy: the ability to understand and appreciate the parallels and differences between customs, values, and beliefs.
6. Information Literacy: the ability to find, understand, evaluate, and use information in various forms for a variety of purposes.
7. Content Literacy: the use of literacy in specific areas such as mathematical literacy or scientific literacy.
8. Critical Literacy: a collection of dispositions and skills that cultivate critical thinking and active inquiry.

Skills = specific learned behaviors necessary to perform a task accurately.

Competencies= the combination of skill, knowledge, and ability that facilitates a person's capacity for achievement, often categorized as behavioral, technical (specific to a given field), and leadership.

Fluencies = the combination of knowledge, skill, and competency within a particular subject or field. Examples of fluencies include:
1. Solution fluency: the ability to think creatively to solve problems in real time by clearly defining the problem, designing an appropriate solution, applying the solution then evaluating the process and the outcome.
2. Creative Fluency: the ability to express or enhance ideas through the arts, design, and storytelling.
3. Collaboration Fluency: the ability to work cooperatively with both real and virtual partners in both physical and virtual environments to solve real and simulated problems.
4. Media Fluency: the ability to look analytically at any communication media to interpret the real message, determine how the chosen media is being used to shape thinking, evaluate the efficacy of the message being presented, and create and publish original media.
5. Information fluency: the ability to critically think while engaging with, creating, and utilizing information and technology regardless of format or platform.

Correlation With Bloom's Taxonomy

Knowledge	Literacies	Skills	Competencies		Fluencies
Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Cite	Add	Acquire	Analyze	Appraise	Abstract
Define	Approximate	Adapt	Audit	Assess	Animate
Describe	Articulate	Allocate	Blueprint	Compare	Arrange
Draw	Associate	Alphabetize	Break down	Conclude	Assemble
Enumerate	Characterize	Apply	Characterize	Contrast	Budget
Identify	Clarify	Ascertain	Classify	Counsel	Categorize
Index	Classify	Assign	Compare	Criticize	Code
Indicate	Compare	Attain	Confirm	Critique	Combine
Label	Compute	Avoid	Contrast	Defend	Compile
List	Contrast	Back up	Correlate	Determine	Compose
Match	Convert	Calculate	Detect	Discriminate	Construct
Meet	Defend	Capture	Diagnose	Estimate	Cope
Name	Describe	Change	Diagram	Evaluate	Correspond
Outline	Detail	Classify	Differentiate	Explain	Create
Point	Differentiate	Complete	Discriminate	Grade	Cultivate
Quote	Discuss	Compute	Dissect	Hire	Debug
Read	Distinguish	Construct	Distinguish	Interpret	Depict
Recall	Elaborate	Customize	Document	Judge	Design
Recite	Estimate	Demonstrate	Ensure	Justify	Develop
Recognize	Example	Depreciate	Examine	Measure	Devise
Record	Explain	Derive	Explain	Predict	Dictate
Repeat	Express	Determine	Explore	Prescribe	Enhance
Reproduce	Extend	Diminish	Figure out	Rank	Explain
Review	Extrapolate	Discover	File	Rate	Facilitate
Select	Factor	Draw	Group	Recommend	Format
State	Generalize	Employ	Identify	Release	Formulate
Study	Give	Examine	Illustrate	Select	Generalize
Tabulate	Infer	Exercise	Infer	Summarize	Generate
Trace	Interact	Explore	Interrupt	Support	Handle
Write	Interpolate	Expose	Inventory	Test	Import
	Interpret	Express	Investigate	Validate	Improve
	Observe	Factor	Layout	Verify	Incorporate
	Paraphrase	Figure	Manage		Integrate
	Picture	Graph	Maximize		Interface
	graphically	Handle	Minimize		Join
	Predict	Illustrate	Optimize		Lecture
	Review	Interconvert	Order		Model
	Rewrite	Investigate	Outline		Modify
	Subtract	Manipulate	Point out		Network
	Summarize	Modify	Prioritize		Organize
	Translate	Operate	Proofread		Outline

	Visualize	Personalize Plot Practice Predict Prepare Price Process Produce Project Provide Relate Round off Sequence Show Simulate Sketch Solve Subscribe Tabulate Transcribe Translate Use	Query Relate Select Separate Subdivide Train Transform		Overhaul Plan Portray Prepare Prescribe Produce Program Rearrange Reconstruct Relate Reorganize Revise Rewrite Specify Summarize

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APPENDIX 2: STUDENT LEARNING OUTCOMES AND OBJECTIVES WORKSHEET

Look up the course description in the university course catalog. Copy and paste it into the box below.

Look up and insert the university's mission statement in the box below. A list of sample Bloom's verbs is provided for your reference.

Mission Statement	Bloom's Verbs (lowest to highest)
	• **Remembering**: define, duplicate, list, memorize, recall, repeat, reproduce, state • **Understanding**: classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase • **Applying**: choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write • **Analyzing**: compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test • **Evaluating**: appraise, argue, defend, judge, select, support, value, evaluate • **Creating**: assemble, compose, construct, create, design, develop, express, formulate

Outcomes

Next, use the workspace below to begin thinking about student learning outcomes you could write for your course.

Examples

Outcome	Bloom's Verb	Knowledge or Skill	Product or Performance to be Measured
1	Evaluate	Arguments for opposing points of view	In a sample legal case involving trademark infringement
2	Analyze	The figurative language in three poems	One-page paper
3	Develop	Interpretive arguments	In discussion and written work
4	Utilize	Proper citations and formatting	Research paper
5	Demonstrate	Leadership skills and abilities	Directing a project team

Workspace

Outcome	Bloom's Verb	Knowledge or Skill	Product or Performance to be Measured
1			
2			
3			
4			
5			

Objectives
1. Rewrite the information in the table above to create three well-written outcomes for your course.
2. Enter the outcomes in the correct spaces in the table below the heading in each cell.
3. Create one or more objectives describing the learning process toward the outcome or components of the outcome. (Insert additional rows as needed.)

Outcome 1	Objective 1
	Objective 2
	Objective 3
Outcome 2	Objective 1
	Objective 2
	Objective 3
Outcome 3	Objective 1
	Objective 2
	Objective 3