

Designing an Academic Department Assessment Plan

Purpose

This guide purposes to provide assistance to departments and programs in developing and revising assessment plans. The practical counsel of this guide flows from a scholarly sub-discipline in higher education of program evaluation associated with strategic and tactical planning. An effective assessment plan is one that provides meaningful information about student learning and the unit's collective performance. The scope and activities of the plan must be manageable to be effective and useful. The most elegant plan that is not manageable occasions frustration and a sense of futility. The plan must be sustainable over time, because the focus of program evaluation addresses long-term trends in aggregated or collective performance; the assessment plan does not focus on the individual performances of either faculty or students. Without the key qualities of meaningfulness, manageability and sustainability, the assessment plan will be ineffective in informing unit decisions targeted to strengthen student learning and demonstrate continuous improvement. This guide purposes to be a tool to assist the unit in determining its impact and effectiveness. Appendices provide best practice counsel and practical examples as points of reference.

Guiding Principles

The Student Assessment Committee proposed, and the Faculty Assembly adopted, the following principles to guide the development and implementation of student learning assessment in academic departments or programs in spring 2003.

1. Departmental student learning outcomes are linked to and flow from the University's mission and values.
2. Continually improving the quality of student learning is the goal.
3. The University places greater emphasis on direct, rather than indirect, measures of student learning. Student satisfaction surveys and end of course evaluations are indirect measures of student learning.
4. Measures from a variety of perspectives increase assessment validity.
5. Particular importance is attached to indicators of student learning that persist over time.
6. The University looks for patterns of evidence rather than putting a great deal of emphasis on one year's data.
7. Summative and formative assessments are both valued.
8. Quantitative and qualitative data are both considered important indicators of student learning.
9. The purpose of program assessment is to help faculty make curricular decisions based on evidence of actual student learning.

Essential Elements and Suggested Outline for Academic Program Assessment Plans

1. The unit's assessment plan begins by describing the linkage to and alignment of the program with the institution's mission. The emphasis of institutional mission, institutional goals, and program outcomes is on student learning and development, not on institutional or program processes (i.e., student-centered learning as opposed to teacher-centered learning).
2. Within the boundaries provided by the institution's mission and goals, the plan specifies the unit's mission, goals, objectives and student learning outcomes.

Note: While there is some variation in how educators define key terms, the most common usage as defined below will be used consistently throughout this guide.

- a. *Goals* – Goals express the intended results in general terms (e.g., clear communication, problem solving, and ethical awareness). Goals are the targets that the unit strives to achieve; they provide direction to all the unit’s activities.
- b. *Objectives* – Objectives express the intended results in more precise terms; they describe specific behaviors the student should master and exhibit (e.g., use effective verbal communication skills, effectively document clinical data, communicate clearly through scholarly papers, use communication technology, etc.).
- c. *Student Learning Outcome Statements* – A special form of objective that describes the level of mastery (an intended outcome) expected of the students as it relates to knowledge, skills, attitudes or dispositions. Outcomes refer to a specific destination rather than a path, an end rather than a mean, an outcome rather than a process (cf. Suskie, 2009, pp. 116-117). Learning outcomes are the knowledge, skills, attitudes or habits of mind the students take with them from a learning experience.

Note: The most useful form or format for goals, objectives and student learning outcomes define “students” as the sentence’s subject, employ an active voice verb construction to describe the knowledge acquired, skill demonstrated, attitude displayed, or disposition evidenced. If possible, the minimum level of mastery acceptable strengthens the assessment process. Forms of goals or objectives that focus on the unit’s processes (e.g., “The Architecture Department will provide opportunity for students to acquire an appreciation for forms of building design.”) are much less useful than identifying the student’s level of learning as evidenced in behavior.

A list of verbs relevant to each level of Bloom’s (1956) taxonomy of learning is presented in Allen (2004, p. 37) and is presented as an appendix. A similar list is also presented that aligns with Fink’s (2003) taxonomy.

- d. *Performance Indicators* – Performance indicators are the quantitative measures of aggregated student performance following the learning activities (e.g., the percentage of students who scored at or above a minimally acceptable score on a rubric or test). Desired levels of performance (benchmarks) should be determined by the unit’s faculty before assessing student learning.
3. The statements of student learning outcomes become critical text for each unit’s program description in the catalog, self-study and accreditation documents, and course syllabi.
 4. The plan defines the purposes for the assessment activities. Typically, this includes continuous unit and institutional improvement expectations, accountability and communication with key publics and stakeholders.
 5. The plan identifies specific assessment instruments and evaluation methodologies for each of the identified program outcomes. The instrument must be relevant and useful for the identified purposes of assessment. A national examination assessing mastery of knowledge is appropriate only to the degree to which the content of the examination corresponds to the learning valued by the program. An instrument should not be selected simply because it is convenient or available. The instrument should be appropriate to the program’s aspirations and specification of learning outcomes.

Note: The principle of multiple measurements applies here. Every desired student learning outcome needs at least one tool or strategy to ascertain the level of achievement or performance. The validity of measurement is enhanced when multiple instruments are employed over an extended time frame; they bolster the unit's confidence in its evaluation. The methods ought to identify long-term learning or changes that continue across time.

Note: Campus-wide assessments, for example, assessment to measure outcomes of general education may be conducted outside the classroom environments. However, program specific assessments are best integrated into the student's classroom experience to maximize relevance and meaningfulness to students. Assessments that are meaningful to students enhance the validity of the assessment and its meaningfulness to the program or unit.

6. The assessment plan should stipulate time lines and time frames with a calendar (over the academic year and over the student's tenure in the program) that identifies when specific unit assessment activities are conducted (e.g., pretest, posttest, occasions for portfolio review, etc.).
7. The plan should specify how the data from individual student assessments will be aggregated and summarized to present a picture of the unit's collective performance. This should include how the quantitative data will be organized, evaluated statistically, and presented graphically to describe the performance of a specific graduating cohort and to describe the trends over time. The plan should also describe how qualitative or narrative data is reduced to significant summaries and the methodology for identifying trends.
8. Means for communicating the significant findings are critical. The methods of communication will vary depending upon the specific audience and the purpose of the assessment. For the internal audience of students at least two facets are important: [a] a report to each student of his/her specific performance, and [b] summary information that provides a context and sense of relative achievement (e.g., average score on the test, number and percent at each level of the rubric, mean and percentile equivalent for instruments published with national norms, etc.).

The summary reports (i.e., annual department reports and 5-year unit self-study reports) for internal academic purposes are normally presented in a different format with a more detailed level of analysis than those oriented to students. The provost's office provides specific instruction to units on what should be included in these internal outcomes reports.

Reports to external constituencies (e.g., trustees, parents, donors, etc.) often discuss the quality of outcomes.

9. Although the summary report may address general issues of accountability and transparency, assessment's principal function focuses on strategies to strengthen student learning, and consequently on improving the program's effectiveness. That is, assessment is not an end in itself, but a critical means to improvement. In the strengthening and improving context, the assessment plan identifies how assessment evidence informs the decision-making processes within the unit, how it informs curriculum design and implementation strategies, and how evidence informs the process of resource allocation. This concern for using the information for informed decision-making is commonly termed "closing the loop."

Appendices

Best Practices Guidelines

- *Matrices* are valuable tools for examining the elements and their linkage relationships to each other (i.e., mission to goals, goals to outcomes, courses to unit objectives, outcomes to performance measures, etc.) Matrices constitute a means to evaluate alignment of key elements in the assessment. They are particular adept at or excellent in identifying gaps.
 - Alignment of unit mission, goals, objectives and student learning outcome statements with the overarching university mission
 - Alignment of evaluation tools and methodology with each of the program's defined student learning outcomes.
- Because each assessment instrument or methodology has limits, is incomplete, and provides at best only rough information, *multiple assessment methods* for each outcome are encouraged to improve the reliability, validity and meaningfulness of the evidence.
- The assessment methodology ought to center on facilitating a judgment about long-term learning. Assessment activities that encourage only short-term learning (e.g., scrambling for a quiz) to not contribute substantially to judgments about an institution's total impact upon students.
- Care should be taken to verify that the particular assessment strategy employed actually is associated with the desired level of learning (e.g., Bloom's taxonomy of levels of learning – knowledge, comprehension, application, analysis, synthesis, evaluation; or Fink's taxonomy of significant learning – foundational knowledge, application, integration, human dimension, caring, learning how to learn). Items on forced-choice or objective tests (e.g., multiple choice, true-false), including those scored on computer scanning technology (e.g., Scantron) are more likely to assess the lower levels of learning (recognition or application) unless they are carefully designed and crafted toward analysis, synthesis or evaluation.
- Assessment strategies and methodologies that incorporate a pretest/learning experience/posttest sequence provide stronger data than the administration of one-time tools. The change in a student from pretest to posttest demonstrates growth and retained learning over time. Both are especially valuable within philosophies of education that focus on talent development or improvement as key elements in defining quality and excellence (cf. Astin, 1985, 1993). The data comparing program entrance to program completion provides greater information about long-term growth and retention than pretests/posttests occurring within one course.
- One challenge in program assessment is engaging student interest and cooperation in assessment activities. Assessment strategies that provide little or no relevant, meaningful information to students about their own performance are plagued with concerns that erode the reliability and validity of the data, and hence its worth and value to the unit. Engaging students in the assessment, finding ways to provide incentive and motivation to students is paramount.
 - Add-on assessments are notorious for enhancing student apathy and lack of motivation, especially if completion of the assessment is the minimum requirement for program completion.
 - Program assessments that are embedded in courses and contribute to the final course grade decrease, but do not eliminate, the apathy and lack of motivation concerns.
 - The meaningfulness of the assessment is enhanced if the student is required to produce or write an end-of-program reflection, especially if the reflection is linked to portfolios of work and reviews of performance (e.g., art exhibit, music recital, etc.). The action of reflecting strengthens and solidifies long-term learning.

- Carefully constructed rubrics are invaluable in the assessment arsenal. They function as powerful communication tools to students by identifying those elements valued by the department. They point the student's attention toward the desired target and outcome. Beyond that, rubrics are powerful evaluation tools for those charged with evaluation tasks. Carefully constructed rubrics capture the valued and desired outcomes for the unit, and they enhance the consistency of evaluation actions by guiding evaluators.

Power Verbs for Student Learning Outcomes (Bloom's Taxonomy)

The following table contains relevant active voice verbs for developing student learning outcome statements associated with Bloom's taxonomy (presented in Allen, 2004, p. 37 and adapted from Gronlund, 1991).

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Cite	Arrange	Apply	Analyze	Arrange	Appraise
Define	Classify	Change	Appraise	Assemble	Assess
Describe	Convert	Compute	Break down	Categorize	Choose
Identify	Describe	Construct	Calculate	Collect	Compare
Indicate	Defend	Demonstrate	Categorize	Combine	Conclude
Know	Diagram	Discover	Compare	Compile	Contrast
Label	Discuss	Dramatize	Contrast	Compose	Criticize
List	Distinguish	Employ	Critique	Construct	Decide
Match	Estimate	Illustrate	Debate	Create	Discriminate
Memorize	Explain	Interpret	Determine	Design	Estimate
Name	Extend	Investigate	Diagram	Devise	Evaluate
Outline	Generalize	Manipulate	Differentiate	Explain	Explain
Recall	Give examples	Modify	Discriminate	Formulate	Grade
Recognize	Infer	Operate	Distinguish	Generate	Interpret
Record	Locate	Organize	Examine	Manage	Judge
Relate	Outline	Practice	Experiment	Modify	Justify
Repeat	Paraphrase	Predict	Identify	Organize	Measure
Reproduce	Predict	Prepare	Illustrate	Perform	Rate
Select	Report	Produce	Infer	Plan	Relate
State	Restate	Schedule	Inspect	Prepare	Revise
Underline	Review	Shop	Inventory	Produce	Score
	Suggest	Sketch	Outline	Propose	Select
	Summarize	Solve	Question	Rearrange	Summarize
	Translate	Translate	Relate	Reconstruct	Support
		Use	Select	Relate	Value
			Solve	Reorganize	
			Test	Revise	

Power Verbs for Student Learning Outcomes (Fink's Taxonomy)

The following table contains relevant active voice verbs for developing student learning outcome statements adapted from Fink's taxonomy (2003, p. 79).

Foundational Knowledge	Application	Integration	Human Dimension	Caring	Learning How to Learn
Identify ... Remember ... Understand ...	Analyze ... Assess ... Calculate ... Coordinate ... Create ... Critique ... Do ... Imagine ... Judge ... Make decisions about ... Manage ... Solve ... Use ...	Compare ... Connect ... Identify the interaction between ... Identify the similarities between ... Integrate ... Relate ...	Come to see themselves as ... Decide to become ... Interact with other regarding ... Understand others in terms of ...	Be more interested in ... Be ready to ... Get excited about ... Value ...	Be able to construct knowledge about ... Create a learning plan for ... Frame useful question on ... Identify source of information on ... Read and study effectively ... Set a learning agenda for ...

Useful Matrices for Developing a Cohesive and Aligned Curriculum

Carefully constructed matrices are excellent tools for assisting academic units to design and to evaluate the cohesiveness of the total curriculum and for examining the interdependencies and contribution made by courses, activities within courses, etc. The major value of matrices as tools is [1] that they help identify the links and associations between unit activities and the overarching institutional mission, and [2] that vacant cells within matrices point to possible gaps. Once a gap is identified, the unit can design and implement a strategy or methodology to overcome the gap, if it is judged to be a deficiency.

The example matrices are ordered from general to specific, from an institutional focus to an activity focus, from global to local.

Alignment of Program Objectives with Institutional Objectives

	Program Outcome 1	Program Outcome 2	Program Outcome 3
Institutional Outcome 1	P	S	
Institutional Outcome 2	S	P	S
Institutional Outcome 3			P

Key

- P denotes that the specific program outcome makes a *primary* or major contribution to the institutional objective.
- S denotes that the specific program outcome makes a *secondary* or minor contribution to the institutional objective.

Notes

- Two types of gaps may be identified. An institutional outcome that does not have at least one program outcomes, aggregated across the whole institution points to an *omission gap*, and the institution should re-evaluate the status of this outcomes and why no program outcomes have been found to implement the institutional. A *mission gap* can exist when a valued program outcome is not integrated into an institutional outcome. In this case, the program outcome should be examined as to its mission-centrality.

Alignment of Program Objectives with Assessment Methodology, Benchmarks and Major Findings

The following matrix has two functions: [1] to identify a priori the measurement method(s) linked to each individual student learning outcome and the acceptable levels of performance for each method, and [2] to summarize a posteriori what the aggregated evidence actually indicates about student performance. In developing the assessment plan, columns 1 through 3 are determined. The summary data in column 4 is added after evidence has been collected and evaluated. The decision-making process is strengthened with multiple measurements are taken on each student learning outcome. No student learning outcomes should be without its assessment strategy and level of minimum satisfactory performance.

Student Learning Outcome (copy program objectives from the unit's portion of the current catalog)	Measurement Instrument(s) Associated with the Student Learning Outcome (include relevant name of instrument and applicable subscale)	Minimum Criterion for Meeting Student Learning Outcomes (depth of learning as benchmark for achievement)	Summary of Student Performance on the Specific Student Learning Outcomes over the Period under Review (aggregated data summary)
Student Learning Outcome 1	<ul style="list-style-type: none"> ▪ Name of direct measure 1 ▪ Name of indirect measure 1 	<ul style="list-style-type: none"> ▪ Benchmark for direct measure 1 ▪ Benchmark for indirect measure 1 	<ul style="list-style-type: none"> ▪ Major finding and trends from direct measure 1 ▪ Major finding and trends from indirect measure 1

Alignment of Domain Content with the Levels of Learning

Each academic program centers on a disciplinary, subject matter and the level (or type) of student learning that the unit seeks for each of its content areas. The level of learning may follow either the Bloom (1956) or Fink (2003) taxonomy. The Bloom taxonomy as exemplified here is adapted from Palomba and Banta (1999, p. 35). The matrix may be utilized at either the program curriculum level or the individual course level.

Student Learning Outcome: The student will successfully evaluate the impact of monetary policy on the economy.

	Know	Comprehend	Apply	Analyze	Synthesize	Evaluate
Monetary system	✓					
Monetary policy				✓		✓
International trade				✓	✓	

- If the example here is for a particular course, given the prevalence of higher order learning, this is likely to be an upper division course with prerequisites that give greater attention to the lower levels of learning.

Alignment of Course with Program Objectives

The following matrix illustrates how a curriculum can be mapped to link courses to program objectives with a focus on sequencing and repetition that builds the level of student learning (adapted from Allen, 2004, p. 43; see also Palomba and Banta, 1999, p. 276).

Course	Program Objective 1	Program Objective 2	Program Objective 3	Program Objective 4	Program Objective 5	Program Objective 6
100	I					I
120		I				P
200	P		P			P
204						P
300	P		P			
329	D					P
400			P			D
480						
490	D		D		D	D

- Key*
- I = introduced
 - P = practiced
 - D = demonstrated

- Notes: Observations and Cautions*
- The sequencing for objective 1 appears reasonable.
 - Objective 2 is introduced, but not practiced or demonstrated. Either this is an omission gap or the objective is secondary in the program.
 - Objective 3 is not introduced.
 - The status of objective 4, as an omission gap, needs to be reviewed carefully, since it is never addressed.
 - If the general conviction holds that repetition aids learning, objective 5 needs to be evaluated, since no introduction or practice occurs before students are required to demonstrate it.
 - Course 480 links to none of the program's identified objectives, and would appear not to be mission-central.

Alignment of Course Objectives with Program Objectives

The following matrix should be developed for each course in the unit’s curriculum. The matrix will assist the instructor to see if the individual course objectives are linked systematically to the program’s objectives.

	Program Objective 1	Program Objective 2	Program Objective 3	Program Objective 4
Course Objective 1	B			
Course Objective 2	B	B		
Course Objective 3		B		
Course Objective 4			I	
Course Objective 5			I	
Course Objective 6				
Course Objective 7				

- Key*
- B = basic
 - I = intermediate
 - A = advanced expectation for this objective

- Notes: Observations and Cautions*
- Program objective 3 activities occur at an intermediate level. Does the course have prerequisites that make the introduction?
 - The status of program objective 4, as a possible omission gap, needs to be reviewed, since it is never addressed. It might be that other courses in the curriculum address this program objective.
 - With no advanced levels, it would appear that the course is not late in the curriculum or a capstone course.
 - Course objectives 6 and 7 appear not to contribute to the program objectives (assuming that four objectives exhaust the program’s objectives) at introductory, intermediate or advanced level.

Alignment of Course Activities with Program Objectives

This matrix is a course planning grid that systematically links a course objective with the learning activity designed to meet the objective. The other critical element is identifying the assessment methodologies for evaluating the learning for each instructional activity. The matrix is adapted from Allen (2004, p. 45) and Fink (2003, p. 125).

Course Objective	Instructional Activity	Assessment Methodology
Students can write research reports in APA style.	<ul style="list-style-type: none"> ▪ Students will work in groups to apply the APA style manual to a set of simulated research report sections created to include APA style violations. Whole-class discussion will ensure that all violations have been identified. ▪ Students will conduct a research project and will iterate drafts of the sections of their research reports, based on peer feedback collected on checklists specifying APA style requirements. 	<ul style="list-style-type: none"> ▪ Objective questions on the second quiz and the final examination will test student knowledge of APA style guidelines. ▪ The grade for student research reports will include a rubric examining conformity to APA style.

- Notes: Strengths*
- The strength of this tool is assisting faculty teaching a course to confirm that each course objective has learning activities planned for the objective, and that there are appropriate evaluation methods for each of the activities. That is, the matrix can identify omission gaps in course planning.

Alignment of Skill with Instructional Activities

For academic programs in which skill development and behavioral performance are critical, the skill and activity matrix helps to define the fundamental sub-skills and to identify the instructional venue in which the sub-skill is learned and practiced (adapted from Palomba and Banta, 1999, p. 34).

Skill	Sub-skills		
Time management	Manages own time	Manages one patient's care in specified time	Manages care of several patients in specified time
	Nursing 101, 102	Clinical and laboratory setting	Hospital and clinic setting

Alignment of Skill with Assessment Measure

For academic programs in which skill development and behavioral performance are critical, the skill and assessment matrix helps to confirm that each essential sub-skills has one or more assessments associated with it (adapted from Palomba and Banta, 1999, p. 35). This tool can identify if and when only one assessment perspective is employed.

Sub-skills	Measure				
	Student Self Assessment	Faculty Rating Scale	Supervisor Questionnaire	Written Examination	Patient Questionnaire
Manages own time	✓	✓			
Manages one patient's care in specified time	✓		✓		
Manages care of several patients in specified time	✓		✓	✓	✓

Notes: Strengths

- The example above illustrates two critical dimensions of program assessment: multiple assessment methods and assessment from multiple perspectives or vantage points.
- When embedded throughout the curriculum, these multiple assessments constitute effective formative assessment and provide critical feedback to students during the program about their progress in learning. For skills that need significant practice and rehearsal, to employ such an evaluation strategy only at the termination of the program, such as in a capstone course as a summative assessment, limits the student's ability to benefit from continuous feedback through the curriculum.
- When information from all the sources is shared with the student, he/she can learn if self-assessment capacity as a personal discipline is developing and maturing in accuracy and sophistication (e.g., learning how to learn from the guidance of knowledgeable others).

References

- Allen, M. J. (2004). *Assessing academic programs in higher education*. San Francisco, CA: Anker Publishing.
- Astin, A. W. (1985). *Achieving educational excellence: A critical assessment of priorities and practices in higher education*. San Francisco, CA: Jossey-Bass.
- Astin, A. W. (1993). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. Phoenix: AZ: Oryx Press.
- Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York, NY: McKay.
- Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey-Bass.
- Gronlund, N. E. (1991). *How to write and use instructional objectives* (4th ed.). New York, NY: Macmillan.
- Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials: Planning, implementing and improving assessment in higher education*. San Francisco, CA: Jossey-Bass.
- Suskie, L. (2009). *Assessing student learning: A common sense guide*. San Francisco, CA: Jossey-Bass.

(4/12/2010, RLT)