ASSESSMENT HANDBOOK
Table of Contents

CAL POLY ASSESSMENT GOALS

University Goals [1]

The university will create a plan to assess the University Learning Outcomes (ULOs) with special emphasis on the five Western Association of Schools and Colleges (WASC) core competencies[2], identify standards of performance for all students in the institution, and implement a coordinated assessment of student learning over a single ten-year cycle of review. As a result, the university will be able to provide evidence of student learning, take steps in areas where improvement is needed and demonstrate where learning has improved. Assessment is intended to be an ongoing effort for continuous improvement of student learning.

Program Goals [2]

Programs will create a plan to assess all Program Learning Outcomes, identify standards of performance for students in the program, and implement a comprehensive assessment of student learning over a single cycle of program review. As a result, the program will be able to provide evidence of student learning, take steps in areas where improvement is needed and demonstrate where learning has improved. Program assessment is intended to be an ongoing effort for continuous improvement of programs and student learning.

1) *The University and Program Goals were adopted by the Academic Assessment Council in Spring 2013 and subsequently approved by the Provost.*

2) *WASC core competencies: written communication, oral communication, quantitative reasoning, critical thinking and information literacy*

What Assessment is and Why We Do It

Assessment is evaluating and improving student learning through four steps:

1. establishing learning goals/objectives/outcomes
2. providing learning opportunities
3. assessing student learning
4. using the results of assessment to improve student learning and the assessment process itself[3]

Student learning is assessed to:

1. ensure that students are learning what we want them to learn.
2. provide an opportunity to make programmatic improvements based on assessments.
3. document student learning for interested stakeholders (the university as a whole, the CSU system, the state legislature, parents, students, outside accrediting agencies, and the general public).
4. use valid and reliable evidence to demonstrate student learning and to improve it.

[3] *Adapted by Linda Suskie, Assessing Student Learning: A Common Sense Guide. New York; Jossey-Bass, 2009, p.4. Print.*

General Principles of Assessment

Cal Poly's assessment process is intended to embody the following principles:

- **Design** assessment efforts to be useful for multiple purposes and audiences including course improvement, program improvement, program review, external accreditation and WASC accreditation.
- **Gather** useful assessment evidence efficiently; this includes encouraging externally accredited programs to use their existing assessment efforts to fulfill university assessment expectations to the degree possible.
- **Support** programs with resources to help with assessment, including rubrics, descriptions of best practices, model timetables, model reports, model evidence collection and storage practices.
- **Empower** faculty and programs with maximum feasible control over how and when they assess their Program Learning Objectives (PLOs).
- **Centralize** and standardize evidence collection and storage, and make assessment evidence easily available to programs.
- **Reaffirm** that assessment evidence is not to be used to evaluate individual faculty members or in the Retention, Promotion and Tenure (RPT) process.

These processes were agreed on by the Academic Assessment Council in Spring 2013.

The Purpose of This Document

This document explains the assessment procedure that the Academic Assessment Council[4] has proposed and the Provost has approved. It explains the model of assessment that Cal Poly currently plans to follow for the next 10 years (until the next time the university comes up for reaccreditation). This document is intended to be a guide to policies and procedures for programs and deans, as well as a reference source for anyone involved in assessment on campus.

Learning Objectives: The Goal

- Learning objectives exist on many different levels, and identify what we want students to know or be able to do by the time they complete a learning experience (graduate, complete a course, complete participation in an extracurricular activity, etc.).

- Listed below are descriptions of the following learning outcomes/objectives:
  WASC Core Competencies, University Learning Objectives, Diversity Learning Objectives, Sustainability Learning Objectives, General Education Focused Learning Objectives and Program Learning Objectives.

---

[4] *Academic Senate resolution AS-735-11 empowered the Academic Assessment Council to act as the university's main policymaking body for assessment of student learning.*

Western Association of Schools and Colleges (WASC) Core Competencies

WASC (Cal Poly's regional accrediting body) expects all schools that it accredits to both achieve and assess these competencies.

Cal Poly's University/General Education assessment spans over a five-year cycle, covering one of these WASC core competencies each year. This schedule complements the workshops offered by WASC and the CSU Chancellor's office. The core competencies are as follows:

1. written communication
2. oral communication
3. quantitative reasoning
4. critical thinking
5. information literacy

_____

Cal Poly's University Learning Objectives (ULOs)

When students graduate from Cal Poly, they should be able to:

1. Think critically and creatively
2. Communicate effectively
3. Demonstrate expertise in a scholarly discipline and understand that discipline in relation to the larger world of the arts, sciences, and technology
4. Work productively as individuals and in groups
5. Use their knowledge and skills to make a positive contribution to society
6. Make reasoned decisions based on an understanding of ethics, a respect for diversity, and an awareness of issues related to sustainability
7. Engage in lifelong learning

ULO 6 states that all Cal Poly graduates should be able to make reasoned decisions based on a respect and awareness of diversity and an awareness of issues related to sustainability.

Because of the complexity of these objectives, the Academic Senate adopted the Diversity Learning Objectives (DLOs) in 2008 and the Sustainability Learning Objectives (SLOs) in 2009, both as addenda to the ULOs.

Diversity Learning Objectives (DLOs)

All students who complete an undergraduate or graduate program at Cal Poly should be able to make reasoned decisions based on a respect and appreciation for diversity.

Students should be able to:

1. Demonstrate an understanding of relationships between diversity, inequality, and social, economic, and political power both in the United States and globally
2. Demonstrate knowledge of contributions made by individuals from diverse and/or underrepresented groups to our local, national, and global communities
3. Consider perspectives of diverse groups when making decisions
4. Function as members of society and as professionals with people who have ideas, beliefs, attitudes, and behaviors that are different from their own

Sustainability Learning Objectives (SLOs)

Cal Poly defines sustainability as the ability of the natural and social systems to survive and thrive together to meet current and future needs. Cal Poly students should be able to consider sustainability when making reasoned decisions.

Students should be able to:

1. Define and apply sustainability principles within their academic programs
2. Explain how natural, economic, and social systems interact to foster or prevent sustainability
3. Analyze and explain local, national, and global sustainability using a multidisciplinary approach
4. Consider sustainability principles while developing personal and professional values

_____

General Education Focused Learning Outcomes (GEFLOs)

Cal Poly's General Education Program has created the Focused Learning Outcomes (GEFLOS) through the merging of Cal Poly's ULOs, CSU Executive Order 1065 and the AACU.org LEAP outcomes.

The GEFLOs are as follows:

1. Aesthetic Appreciation/Creative Thinking
2. Critical Thinking
3. Integrative Learning
4. Physical/Psychological Health
5. Scientific, Mathematical Understanding and Problem Solving
6. Disciplinary Knowledge
7. Writing Proficiency
8. Cultural Diversity/Global Understanding
9. Oral Communication
10. Ethical Reasoning

Program Learning Outcomes

Every program at Cal Poly has program learning outcomes (PLOs) which translate the ULOs into terms relevant to each specific discipline and define expectations for all graduates of the program. For example, "demonstrating expertise in a scholarly field" means something different in the Theatre Department than in does in the Chemistry Department. It is appropriate that each program specify what abilities and knowledge students should have to achieve the expected degree of expertise for that discipline. PLOs should be explicitly mapped to the ULOs.

Cal Poly's Assessment Strategy: The Three-Legged Stool

Over the next ten years, Cal Poly will assess the ULOs in three different but complementary ways: Annual Program Assessment, University/General Education Assessment and Program Review/Provost's Initiatives.

Annual Program Assessment

During their program review cycle, each program at Cal Poly should assess the entirety of its program learning objectives. (Program review cycles vary in length among programs; most are 6 years.) In each year, the program should engage in some aspect of the assessment process (gathering evidence, analyzing evidence, reflecting on the evidence, implementing changes, assessing those changes, assessing the assessment process). Programs decide which PLOs to assess when, and they also decide how to assess them. The university will provide advice and guidance (rubrics, information about best practices, workshops and training opportunities, templates, and so on). Programs that are already engaged in assessment efforts to maintain external accreditation are encouraged to use those efforts to fulfill their Cal Poly assessment obligations as well, to the degree possible. The main purpose of program-level assessment is to ensure student learning at the program level and to enable program improvement as necessary.

University/General Education Assessment

The General Education program has an independent assessment process that parallels program-level efforts and is intended to assess learning outcomes across the university.   The tentative five-year assessment plan is designed to align the WASC core competencies, the University Learning Objectives and the GE Focused Learning Outcomes. Programs may want to consider aligning their assessment efforts with this schedule to take advantage of the various resources. Listed below are two documents that illustrate the assessment flow graphically.

Program Review/Provost's Initiatives

As programs undergo periodic program review, they will generally be asked to undertake an additional assessment effort focused on an area of special interest to Academic Programs. For example, programs might be asked to assess the effectiveness of their Senior Project as a capstone experience. Academic Programs will provide programs with information about this additional assessment effort at least one year in advance, to allow for planning. In addition, Academic Programs will also coordinate university-wide assessment-related efforts such as Cal Poly's participation in the National Survey of Student Engagement (NSSE), and these university-wide efforts will generally require little from individual programs.

Program Learning Objectives (PLOs): Where It All Starts

- Program Learning Objectives (PLOs) are what the faculty of a program want the students in their program *to know and to be able to do by the time the students graduate.* For each program, the people who are best equipped to identify those desirable outcomes are the program's faculty. Cal Poly has University Learning Objectives, but they are intentionally stated in general terms to allow each program to apply them to its specific disciplinary needs.

- Every program has expectations about what its students will know and will be able to do by the time they graduate. However, sometimes those expectations are unspoken and vague. It is the faculty in the program that know what knowledge and skills someone with a bachelor's degree in Chemistry or English or Food Science and Nutrition should have.

- Furthermore, all faculty are engaged in judging whether the students have obtained these specific knowledge and skills by grading their work in major classes and evaluating and grading their senior projects. Some of the judgment of student work is quantitative (for example, multiple-choice tests), and some of it is qualitative (for example, grading an essay or assessing a recital). But everything is potentially *measurable or observable*—that is, all such evaluation of student work could be done in ways that allow different students' work to be compared using common criteria and for the findings to be reported in a systematic way. The goal of writing PLOs is to spell out faculty expectations clearly and explicitly.

Measurable/Observable Learning Outcomes and Standards/Benchmarks

- Once a program has written Program Learning Objectives, the next step is to make sure that these outcomes are defined or operationalized in a measurable or observable way. A concise set of PLOs, summarizing expectations for all students in an academic program, is likely to be written at a level of generality that is difficult to assess. A program will also need specific and measurable (or observable) learning outcomes.
- Depending on the program, discipline, and the role of external accrediting agencies (if any), such outcomes may be defined at the course level (in which case they would overlap with course learning outcomes), or they may operate at a level between the course objectives and the program objectives. They might be called student learning outcomes, annotated program learning objectives, measurable attributes, student performance criteria, etc. The name doesn't matter. What does matter is that the outcomes specify a student skill in relation to an artifact or performance that can demonstrate the development of that skill. For example, if one of a program's PLOs is "Demonstrate mastery of expository writing," the associated learning outcome might be "Write at least three 20-25 page papers at an advanced level of proficiency."
- Once a program has identified the measurable or observable learning outcomes for each PLO, the next step is to identify standards or benchmarks for evaluating whether the students in the program are achieving those outcomes at an appropriate level. There are many ways to do this.

- Here is an example:
  To measure or observe the expository-writing PLO and observable learning outcomes (given as examples above), a program might decide to collect a sample of 20-25-page papers from upper-level major courses and evaluate them using a rubric such as the University Writing Rubric (PDF).

- The University Writing Rubric looks at five characteristics of papers (Purpose, Synthesis, Support, Style, Mechanics), and scores each one from 0-4. The program might decide that their internal standard or benchmark of student success is that 70% of the sampled papers should get a 3 or higher on each of the characteristics. If the program then finds that 70% of the sampled papers earn 3s or better on Purpose and Synthesis, but only 50% do so on Support, and only 40% on Style and Mechanics, that provides some useful data about where the program's students are doing well and where they could use additional instruction.

Assessment Plan and Curriculum Map

- Once a program has PLOs, measurable/observable learning outcomes, and benchmarks/standards in place, the next step is to create a multi-year assessment plan. The basic idea is that during every program review cycle (approximately 6 years), each program will assess all of its PLOs. When the next program review takes place, each program should have sufficient information about whether its students are achieving its PLOs. (And when the next university reaccreditation process takes place, the university as a whole should be in the same position).
- To create an assessment plan, the program will need a curriculum map (available in the appendix), which is a grid that shows all of a program's courses, including support courses and GE areas, as well as any special components that the program includes (exit exam, exit interview, periodic alumni survey, etc.). The curriculum map should indicate which courses or components students should have achieved or be able to demonstrate an *Introductory, Developmental or Mastery* level regarding each PLO and ULO. Each program should decide when and where in the curriculum to assess each PLO. (See below for information about reporting these plans).

Assessment Reporting

- Programs will be asked to report on their assessment activities both annually and during periodic program review. To make that process easier, Academic Programs has created a template for annual reporting, called the Assessment Plan Progress Report (available in the appendix). The templates are designed to capture information about PLOs, measurable/observable learning outcomes, annual assessment efforts, the program's timetable for assessment, and efforts to improve the program based on assessment results.
- The templates are also designed to be cumulative—programs simply update them each year. By the next program review, most of the information the program will need should already be in the most recent annual report. All programs were asked to submit an Assessment Plan Progress Report during the 2012-2013 academic year, so this basic process should be familiar.

University/General Education Assessment

The General Education program has an independent assessment process that parallels program-level efforts and is intended to assess learning outcomes across the university. The tentative five-year assessment plan is designed to align the WASC core competencies, the University Learning Objectives and the GE Focused Learning Outcomes. Programs may want to consider aligning their assessment efforts with this schedule to take advantage of the various resources. Listed below are two documents that illustrate the assessment flow visually with graphs.

- **University/GE Tentative Learning Outcome Assessment Phases**
- **University/GE Learning Outcome Assessment Template**

What University/GE Assessment Will Ask of Programs

In general, University/GE assessment will require little from the programs and most activities will be voluntary. For example, faculty may be asked if they would like to join a WASC learning committee. Faculty teaching GE may be asked to pilot a rubric or embed an assignment in one of their classes and then report the results. For information about how to obtain evidence or participate in the University/GE Assessment, contact the GE Program office by phone at x62228 or by email (mtool@calpoly.edu).

What University/GE Assessment Will Provide Programs

- Evidence about how well their students are achieving the various ULOs.
- Opportunities for programs to participate in and benefit from the various working groups that are planning and carrying out University/GE assessment.

_____

Program Review/Provost's Initiatives

1) Reporting past efforts

- Starting in 2012-2013, all programs have been asked to report their assessment efforts annually, using the Assessment Plan Progress Report templates provided by Academic Programs. The templates are designed to be cumulative, so that the program adds each year's information to the previous year's report. The templates are also designed to capture nearly all of the assessment information that programs will be asked to submit during program review. Thus, by the time program review comes around, each program's cumulative report of past efforts should contain most of the assessment information that will be required.

- Programs should also expect to be asked to provide a brief report closing the loop on their experience with assessment since the last program review, reporting any changes they have made or plan to make to improve student learning and any changes they have made or plan to make to improve their assessment process.

2) Additional Assessment Efforts

- All programs (including those that are externally accredited) should expect to engage in some additional assessment effort as part of program review. For example, Academic Programs may ask programs to assess the effectiveness of the senior project as a capstone experience, by using a standard rubric to assess a sample of senior projects.

- Programs will be informed about this additional assessment effort at least one year in advance to give them time to prepare (and perhaps to piggyback other assessment efforts onto this one).

Provost's Initiatives

- The Provost's office oversees a variety of additional efforts that may produce evidence relevant to assessment, such as Cal Poly's participation in the National Survey of Student Engagement (NSSE) and the Collegiate Learning Assessment (CLA). Evidence from those efforts is made available to programs through Academic Programs.

_____

Assessment Glossary

Assessment
The systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development. (Palomba & Banta, 1999) Assessment is an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. (Tom Angelo, 1995)

Assessment for Accountability
The assessment of some unit, such as a department, program or entire institution, which is used to satisfy some group of external stakeholders. Stakeholders might include accreditation agencies, state government, or trustees. Results are often compared across similar units, such as other similar programs and are always summative. An example of assessment for accountability would be ABET accreditation in engineering schools, whereby ABET creates a set of standards that must be met in order for an engineering school to receive ABET accreditation status. (cmu.edu)

Assessment for Improvement
Assessment activities that are designed to feed the results directly, and ideally, immediately, back into revising the course, program or institution with the goal of improving student learning. Both formative and summative assessment data can be used to guide improvements. (cmu.edu)

Benchmark/Standard (Cal Poly)
A standard against which student achievement of a learning outcome is measured.

Closing the Loop
"Closing the loop" is the most important step in the continuous cycle of learning assessment. It is the collaborative process through which programs use evidence of student learning to gauge the efficacy of collective educational practices, and to identify and implement strategies for improving student learning. (Raymond M. Zurawski, Ph.D., Hamlin University)

Concept Maps
Concept maps are graphical representations that can be used to reveal how students organize their knowledge about a concept or process. They include concepts, usually represented in enclosed circles or boxes, and relationships between concepts, indicated by a line connecting two concepts. (cmu.edu)

Curriculum Map (Cal Poly)
Cal Poly utilizes a grid to show all of a program's courses (including support courses and GE areas), indicating where program learning objectives and university learning objectives are introduced, developed and mastered.

Direct Assessment of Learning
Direct assessment is when measures of learning are based on student performance or demonstrates the learning itself. Scoring performance on tests, term papers, or the execution of lab skills, would all be examples of direct assessment of learning. Direct assessment of learning can occur within a course (e.g., performance on a series of tests) or could occur across courses or years (comparing writing scores from sophomore to senior year). (cmu.edu)

Direct Measure of Learning Outcome
Students demonstrate an expected learning outcome. (Allen, 2002).

Educational Objectives
Include the knowledge, skills, abilities, capacities, attitudes or dispositions students are expected to acquire as a result of completing your academic program. Objectives are sometimes treated as synonymous with outcomes, though outcomes are usually more detailed, behavioral in nature, and stated in precise operational terms (see Learning Outcomes).

Embedded Assessment
A means of gathering information about student learning that is integrated into the teaching-learning process. Results can be used to assess individual student performance or they can be aggregated to provide information about the course or program. Can be formative or summative, quantitative or qualitative. Example: as part of a course, expecting each senior to complete a research paper that is graded for content and style, but is also assessed for advanced ability to locate and evaluate Web-based information (as part of a college-wide outcome to demonstrate information literacy). (cmu.edu)

External Assessment
Use of criteria (rubric) or an instrument developed by an individual or organization external to the one being assessed. This kind of assessment is usually summative, quantitative, and often high-stakes, such as the SAT or GRE exams. (cmu.edu)

Evaluation
The use of assessment findings (evidence/data) to judge program effectiveness; used as a basis for making decisions about program changes or improvement.

Formative Assessment
Formative assessment refers to the gathering of information or data about student learning during a course or program that is used to guide improvements in teaching and learning. Formative assessment activities are usually low-stakes or no-stakes; they do not contribute substantially to the final evaluation or grade of the student or may not even be assessed at the individual student level. For example, posing a question in class and asking for a show of hands in support of different response options would be a formative assessment at the class level. Observing how many students responded incorrectly would be used to guide further teaching. (cmu.edu)

General Education Focused Learning Objectives (Cal Poly)
The General Education Program has established ten learning outcomes for students in General Education courses. These outcomes were developed using CSU Executive Order standards, WASC standards, and LEAP (AAC&U) standards.

Goals
The general aims or purposes of a program and its curriculum. Effective goals are broadly stated, meaningful, achievable and assessable. Goals provide a framework for determining the more specific educational objectives of a program, and should be consistent with program and institutional mission.

High stakes Assessment
The decision to use the results of assessment to set a hurdle that needs to be cleared for completing a program of study, receiving certification, or moving to the next level. Most often, the assessment used is externally developed, based on set standards, carried out in a secure testing situation, and administered at a single point in time. Examples: at the secondary school level, statewide exams required for graduation; in postgraduate education, the bar exam. (cmu.edu)

Holistic Scoring
One global, holistic score for a product or performance. (Allen, 2002).

Indirect Assessment of Learning
Indirect assessments use perceptions, reflections or secondary evidence to make inferences about student learning. For example, surveys of employers, students' self-assessments, and admissions to graduate schools are all indirect evidence of learning. (cmu.edu)

Indirect Measure of Learning Outcome
Students or others report their perception of how well a given learning outcome has been achieved.

Individual Assessment

Uses the individual student and his/her learning, as the level of analysis. Can be quantitative or qualitative, formative or summative, standards-based or value added, and used for improvement. Most of the student assessment conducted in higher education is focused on the individual. Student test scores, improvement in writing during a course, or a student's improvement in presentation skills over their undergraduate career are all examples of individual assessment. (cmu.edu)

Institutional Assessment

Uses the institution as the level of analysis. The assessment can be quantitative or qualitative, formative or summative, standards-based or value added, and used for improvement or for accountability. Ideally, institution-wide goals and objectives would serve as a basis for the assessment. For example, to measure the institutional goal of developing collaboration skills, an instructor and peer assessment tool could be used to measure how well seniors across the institution work in multi-cultural teams. (cmu.edu)

Levels of Achievement (Cal Poly)

Cal Poly uses three levels of achievement when mapping learning objectives. These are introductory, developmental and mastery.

Learning Outcomes

Operational statements describing specific student behaviors that evidence the acquisition of desired knowledge, skills, abilities, capacities, attitudes or dispositions. Learning outcomes can be usefully thought of as behavioral criteria for determining whether students are achieving the educational objectives of a program, and, ultimately, whether overall program goals are being successfully met. Outcomes are sometimes treated as synonymous with objectives, though objectives are usually more general statements of what students are expected to achieve in an academic program (see Educational Objectives).

Local Assessment

Means and methods that are developed by an institution's faculty based on their teaching approaches, students, and learning goals. An example would be an English Department's construction and use of a writing rubric to assess incoming freshmen's writing samples, which might then be used to assign students to appropriate writing courses, or might be compared to senior writing samples to get a measure of value-added. (cmu.edu)

Observer Effect

The degree to which the presence of an observer influences the outcome.

Program Assessment

Uses the department or program as the level of analysis. Can be quantitative or qualitative, formative or summative, standards-based or value added, and used for improvement or for accountability. Ideally, program goals and objectives would serve as a basis for the assessment. Example: How well can senior engineering students apply engineering concepts and skills to solve an engineering problem? This might be assessed through a capstone project, by combining performance data from multiple senior level courses, collecting ratings from internship employers, etc. If a goal is to assess value added, some comparison of the performance to newly declared majors would be included. (cmu.edu)

Program Learning Objectives/Outcomes
Generally, there are three types of objectives: 1) Cognitive - What do you want your students to know? 2) Affective - What do you want your students to think or care about? and 3) Behavioral - What do you want your graduates to be able to do? Programs devise these statements as the essential learning that students are expected to achieve by the time they graduate.

Qualitative Assessment
Collects data that does not lend itself to quantitative methods but rather to interpretive criteria (see the first example under "standards"). (cmu.edu)

Quantitative Assessment
Collects data that can be analyzed using quantitative methods (see "assessment for accountability" for an example). (cmu.edu)

Rubric
A rubric is a scoring tool that explicitly represents the performance expectations for an assignment or piece of work. A rubric divides the assigned work into component parts and provides clear descriptions of the characteristics of the work associated with each component, at varying levels of mastery. Rubrics can be used for a wide array of assignments: papers, projects, oral presentations, artistic performances, group projects, etc. Rubrics can be used as scoring or grading guides, to provide formative feedback to support and guide ongoing learning efforts, or both. (cmu.edu)

Standards
Standards refer to an established level of accomplishment that all students are expected to meet or exceed. Standards do not imply standardization of a program or of testing. Performance or learning standards may be met through multiple pathways and demonstrated in various ways. For example, instruction designed to meet a standard for verbal foreign language competency may include classroom conversations, one-on-one interactions with a TA, or the use of computer software. Assessing competence may be done by carrying on a conversation about daily activities or a common scenario, such as eating in a restaurant, or using a standardized test, using a rubric or grading key to score correct grammar and comprehensible pronunciation. (cmu.edu)

Summative Assessment
The gathering of information at the conclusion of a course, program, or undergraduate career to improve learning or to meet accountability demands. When used for improvement, impacts the next cohort of students taking the course or program. Examples: examining student final exams in a course to see if certain specific areas of the curriculum were understood less well than others; analyzing senior projects for the ability to integrate across disciplines. (cmu.edu)

Triangulation
Involves the collection of data via multiple methods in order to determine if the results show a consistent outcome.

University Learning Objectives (Cal Poly)
Cal Poly has adopted seven University Learning Objectives (ULOs) to define the institution's expectations for student learning.

Value-Added
The increase in learning that occurs during a course, program, or undergraduate education. Can either focus on the individual student (how much better a student can write, for example, at the end than at the beginning) or on a cohort of students (whether senior papers demonstrate more sophisticated writing skills -in the aggregate- than freshmen papers). To measure value-added, a baseline measurement is needed for comparison. The baseline measure can be from the same sample of students (longitudinal design) or from a different sample (cross-sectional). (cmu.edu)

Western Association of Schools and Colleges (WASC)
The Accrediting Commission for Schools, Western Association of Schools and Colleges (ACS WASC) is one of six regional accrediting associations in the United States. This is the regional accrediting body that reviews Cal Poly's accreditation every ten years.

WASC Core Competencies
Institutions will be expected to demonstrate that their graduates have achieved the institution's stated level of proficiency at least in the following five areas: written and oral communication, quantitative skills, critical thinking and information literacy.

Sources:

1. *Allen, Mary; Noel, Richard, C.; Rienzi, Beth, M.; and McMillin, Daniel, J. (2002).*
    Outcomes Assessment Handbook. California State University, Institute for Teaching and Learning, Long Beach, CA.
2. *"Common Assessment Terms." Whys and Hows of Assessment. Carnegie Mellon University: Eberly Center for Teaching Excellence.*
    http://www.cmu.edu/teaching/assessment/basics/glossary.html

University Learning Objectives (ULO) ➡ *"When students graduate from Cal Poly, they **should be able to:**"*	1. Think critically and creatively	2. Communicate effectively	3. Demonstrate expertise in a scholarly discipline and understand that discipline in relation to the larger world of the arts, sciences, and technology	4. Work productively as individuals and in groups	5. Use their knowledge and skills to make a positive contribution to society	6. Make reasoned decisions based on an understanding of ethics, a respect for diversity, and an awareness of issues related to sustainability	7. Engage in lifelong learning
General Education Focused Learning Objectives (GEFLO) ➡ *GE Area (A1-F)* *I=Introduced* *D=Developed*	1. Aesthetic appreciation/ Creative Thinking (C1-I, C3-I, C4-D) 2. Critical Thinking (A123-I, C123-D, C4-D, D1234-I, D5-D)	6. Oral Communication (A2-I) 9. Writing Proficiency (A1-I, A3-I, C1-D, C2-D, C4-D, D5-D)	4. Disciplinary Knowledge (A123-I, B12345-I, B6-D, C123-I, C4-D, D1234-I, D5-D, F-D) 8. Scientific, Mathematical Understanding, Problem Solving (B12345-I, B6-D, F-D) 10. Integrative Learning (B5-D, B6-D, C4-D, D5-D, F-D)	3. Cultural diversity/Global Understanding (D123-I)	7. Physical-Psychological Health (D4-I)	3. Cultural diversity/Global Understanding (D123-I) 5. Ethical Reasoning (C2-I, F-D)	
PLOs*	For completion	For completion	For completion	For completion	For completion	For completion	For completion
CLOs**	For completion	For completion	For completion	For completion	For completion	For completion	For completion
WASC Core ➡ ***Competencies*** *"Requiring institutions to demonstrate **proficiency** of their graduates in 5 key areas"*	4. Critical Thinking	1. Written communication 2. Oral communication	3. Quantitative reasoning 5. Information literacy	1. Written communication 2. Oral communication			5. Information literacy

*PLOs: Program Learning Objectives alignment to be completed by program.   **CLOs: College Learning Objectives alignment to be completed by college

Cal Poly, San Luis Obispo - Model Curriculum Map

	Key: I = Introduced to D = Develop M = Master CHEMISTRY COURSES	University Learning Objectives									Make reasoned decisions based on:		
		Think critically	Think creatively	Communicate effectively	Expertise in scholarly discipline	Understand discipline in larger world	Individual work	Group work	Use knowledge & skills to make a positive contribution	Engage in lifelong learning	an understanding of ethics	a respect for diversity	an awareness of sustainability
	Program Learning Objectives	(1)	(1)	(1) and (2)	(3)	(4)	(5)	(5)	(4)	(6)	(6)	(6)	(6)
Year 1	Chem 127, 128, 129	I			I		I						
	Bio 161	I					I	I					I
	Math 141, 142, 143	I					I						
	GE: A1, A2, A3	I		I	I	I	I			I			
	Free Elective												
Year 2	Chem 316	I			I								
	Chem 317	D			D								
	Chem 318	I	I		D	D							
	Chem 319	D	D	D	D		D	D			I		I
	Chem 331	D	D	D	D	D	D	D				D	D
	Phys 141, 142, 143	1					1						
	GE:C1	D	I	D	I	I	I						
	GE:C2	D		D	I	I	I					I	
	GE:C3	D	I		I	I	I						
	Free Elective												
Co-curricular Involvement	ACS student group	D	D	D	D	D		D	D	D	D	D	D
	Alpha Chi Sigma	D	D	D	D	D		D	D	D	D	D	D
	Peer Tutor	D	D	D	D		D		D		D	D	

Note that this grid maps the Program Learning Objectives to the University Learning Objectives, and both to the program's curriculum, GE courses, and co-curriculum. It is not necessary to break the curriculum/GE/co-curriculum up by year, though for some programs it may be helpful to do so.

(adapted from Academic Programs' Program Review Self-Study Template For Undergraduate Programs)

PLAN PROGRESS REPORT

Program Name (Degree Name):
Date of Assessment Plan/or Progress Report:
Person Submitting Action Plan:

Please use the **table** below to provide a plan for assessing your program learning objectives (PLOs) during a single cycle program review. For each objective, indicate the number of the corresponding University Learning Objective (ULO), the academic year (AY) during which the assessment will take place, and a description of the planned assessment method, including:

- Whether the assessment will be direct (test or examination of student work) or indirect (survey).
- The form of the assessment, e.g., test, survey, or examination of student work.
- Courses in which the assessment will be embedded.
- Number of expected participants.
- Rubric to be used, if any.

You may add rows as necessary

PLO or other ISSUE/ITEM* (Indicate Source)	ULO	AY	ASSESSMENT METHOD	RESULTS (REFLECTIONS OF STUDENT LEARNING)	IMPROVEMENTS (CLOSING THE LOOP)
Communicate effectively as a professional	*2*	*2012-13*	*Direct examination of writing samples produced in the major's senior project course by 100 students using University Writing Rubric.*		

*Issue or Item can come from program reviewers' report, department, assessment data, or other source. Please identify source.

Signatures:

CAL POLY
SAN LUIS OBISPO

_____ _____
Department Head   **Date**

Comments:

_____ _____
Associate Dean   **Date**

Comments:

_____ _____
Dean   **Date**

Comments:

_____ _____
Associate Vice Provost   **Date**

Comments: