EL CAMINO COLLEGE

Learning Outcomes & Assessment Handbook

Creating and Sharing Evidence of Effective Teaching Practices

(ALC New Member Guide Included)

Updated: 02.01.2016

SECTION 1

Learning Outcomes & Assessment Handbook

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SECTION 2

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The El Camino College Mission

El Camino College offers quality, comprehensive educational programs and services to ensure the educational success of students from our diverse community. Central to this mission is student learning, which is not restricted to interactions between students and instructors in a classroom. Instead, the entire campus works together to support student learning in all of our courses, programs and services.

Assessment of Learning Committee Mission Statement

The Assessment of Learning Committee strives to improve student success by coordinating assessment planning, developing sustainable methodologies and procedures, providing ongoing training, and promoting authentic communication on campus and with the community.

Assessments of student learning offer the institution a vital measure of how effectively El Camino College is fulfilling its mission. Assessment results provide evidence upon which to base curricular, planning and budget decisions, which lead to greater student success. Administrators, faculty, and staff work together to support on-going authentic assessment of student learning outcomes in all of its courses, programs and services.

El Camino College's
Guiding Principles for
Student Learning Outcomes Assessment

1. **For any course, program, or service, the personnel directly involved in its delivery are finally responsible for all aspects of its assessment cycles.**
   While expected to consult with all stakeholders on campus, the responsible personnel are the best qualified to determine appropriate student learning outcomes, implement effective assessments, report results, and make recommendations for improvements. For each outcome, they are also best equipped to decide when each stage of the cycle is complete.

2. **Broad participation in assessment cycles by administrators, faculty, and staff is a shared responsibility.**
   The more personnel that participate in the production and analysis of assessment results, the greater the likelihood that proposed changes will be implemented and sustained.

3. **Student learning outcomes are defined in various ways.**
   Student learning outcomes vary tremendously among courses, programs and services; they may be cognitive, affective, or psychomotor. They change over time and are informed by a multitude of factors, including community needs, discipline standards, and previous assessment cycles.

4. **Assessments use various methods and may build upon existing assessments.**
   Assessment techniques range widely in style and rigor. Whenever feasible, existing assessment instruments are modified based on results from previous assessments. If possible, new assessment processes replace old ones. Direct measures of student learning are preferred, although indirect measures are used, particularly in areas that indirectly support student learning.

5. **Curricular, planning and budget decisions are informed by assessment results.**
   Assessment results provide evidence that allow administrators, faculty and staff to make wise planning and budget decisions. All curricular and program reviews are stronger when they incorporate assessment results in their reports. Faculty members who are responsible for curriculum are required to reflect on assessments and their results as part of periodic self-evaluation. Similarly, Program Review reports focus on SLO, PLO and SAO assessments so that changes can be integrated into planning procedure.

6. **Assessments are used to evaluate and improve student learning.**
   Information gleaned from assessment cycles is used primarily to understand the factors affecting student learning and to improve instruction and services. Assessments of student learning outcomes are not used to undermine academic freedom.

7. **Resources are provided for assessment cycles.**
   For some assessment cycles, existing resources suffice; for others, additional resources are needed. Administrators, working together with faculty and staff, find the means of conducting meaningful assessment cycles without compromising the quality of instruction, delivery of services or overburdening specific personnel.

El Camino College Institutional Learning Outcomes (ILOs)

Students completing a course of study at El Camino College will achieve the following institutional learning outcomes:

ILO #1 – CRITICAL THINKING

Students apply critical, creative and analytical skills to identify and solve problems, analyze information, synthesize and evaluate ideas, and transform existing ideas into new forms.

- Identify vital questions, problems, or issues and evaluate solutions.
- Analyze, compose, and assess the validity of an argument.
- Compute and analyze multiple representations of quantitative information, including graphical, formulaic, numerical, verbal, and visual.

ILO #2 – COMMUNICATION

Students effectively communicate with and respond to varied audiences in written, spoken or signed, and artistic forms.

- Comprehend, analyze, and respond appropriately to oral, written, and visual information. Effectively communicate/express information through speaking, writing, visual, and other appropriate modes of communication/expression.
- Effectively communicate ideas and opinions to a varied audience, including peers, faculty, staff and community.
- Respond to audiences from different arenas either in written, spoken or signed, and artistic forms to express ideas and opinions.

ILO #3 – COMMUNITY AND PERSONAL DEVELOPMENT

Students are productive and engaged members of society, demonstrating personal responsibility, and community and social awareness through their engagement in campus programs and services.

- Engage in on-campus programs and services that utilize campus resources and opportunities to foster community, civic, political, environmental, health and social awareness.
- Demonstrate personal responsibility by identifying, maintaining, and improving physical and mental health and by implementing and evaluating personal, academic, financial, and career goals.
- Seek feedback, analyze and evaluate one's own progress toward goals and be able to find applicable solutions to challenges impeding one's success.

ILO #4 – INFORMATION LITERACY

Students determine an information need and use various media and formats to develop a research strategy and locate, evaluate, document, and use information to accomplish a specific purpose. Students demonstrate an understanding of the legal, social, and ethical aspects related to information use.

- Evaluate and choose credible sources for information.
- Understand when and how to give citations in the format appropriate for their field of study.
- Research data and draw conclusions based on an analysis of that data.

El Camino College General Education Outcomes (GEOs)

El Camino College General Education Philosophy

El Camino College (ECC) recognizes the need to provide a multidimensional, multicultural, and integrative general education curriculum, as the core of the associate degree. With this objective in mind, El Camino College pledges to develop and maintain a general education curriculum that promotes critical thinking and analytical skills, clear and precise expression, cultural and artistic sensitivity, personal growth, health, and self-understanding. General education curriculum will enhance appreciation and understanding of the scientific method and the relationships between science and other human activities. It will also develop an understanding of methods of inquiry regarding human behavior, foster an appreciation of how societies and social groups operate, and develop awareness of the ways people throughout the ages have responded to themselves and the world around them in artistic and cultural creations.

General Education Area Learning Outcomes Assessment

The College will use Institutional Learning Outcomes (ILOs) to assess General Education (GE) areas. ILOs allow our institutional-level assessments to apply to all students, including those taking GE courses. This approach will give us results that are useful and actionable. Our ongoing ILO assessments will aggregate data around GE areas for analysis and possible actions.

* * * * *

Every program at El Camino College has aligned course student learning outcomes (SLOs) with degree student learning outcomes (PLOs). All courses and program learning outcomes are aligned with institutional learning outcomes (ILOs). This alignment is a required component of program review and is documented in the 'Assessment and SLO' portion of the program review. As part of this, all general education courses are mapped to the College's ILOs. We have an ILO assessment timeline and have assessed all ILOs.

The alignment matrices are entered into TracDat, which will allow the extraction of PLO and ILO assessment data from the course-level assessment reports. This assessment data will be aggregated by GE area, combined with other standalone ILO assessments happening on campus, and analyzed by faculty & staff for needed actions.

* * * * *

Our current and proposed ILOs strongly correspond to GE areas. Our ILOs do cover all GE areas as outlined in ACCJC Standard II.A.12.

The Assessment Cycle

A student learning outcome assessment cycle is a comprehensive process in which we:

A. Identify a student learning outcome.
B. Design an assessment instrument.
C. Design and implement an assessment plan.
D. Reflect on the results of the assessment and draw conclusions.
E. Share the results and conclusions with the college community and invite review and comments.
F. Implement action plan in response to data and recommended changes to improve student learning.
G. Follow-up on action plan.

The Assessment Cycle
Plan / Identify – Do / Assess – Reflect / Review / Revise
(Repeat)

Review / Reflect / Revise:
5. Evaluate assessment results.

6. Use results to refine instruction and services (close the feedback loop) and modify course, program and services goals and outcomes.

Plan / Identify:
1. Establish goals for courses, programs and services.

2. Write intended Learning Outcomes.

Do / Assess:
3. Develop means of assessment and criteria for success for evaluating Learning Outcomes (a rubric).

4. Incorporate Learning Outcomes assessment tasks into instruction and services.

Using SLOs and assessment cycles is an approach to teaching with three cornerstone beliefs. The first is that "covering" material during a course does not necessarily **guarantee** that students learn it. Simple success and retention rates are no longer acceptable ways of measuring how successful our students are. Success is determined by students emerging from our courses and programs with integrated, higher learning skills that they can **demonstrate** to others. These demonstrations constitute evidence that they have truly learned. Another keystone of the theory is the belief that students perform better when they know exactly what is expected of them, including what they will be required to do and how it will be evaluated. What defines an A, B or C paper or project should be public knowledge. **Transparency** is the key to using SLOs successfully in the classroom. The final concept is **practice.** Before being evaluated on an SLO, students should have the opportunity to practice the skill or tasks that compose it.

How do SLOs, PLOs, and ILOs fit into El Camino College Processes?

In the classroom, the new Accreditation Standards require that SLOs become an integral part of every syllabus. SLOs should also act as a guide for classroom activities and direct classroom assessments or evaluations. Additional SLO prompts and guidelines have been added in the Program Review template to better integrate SLO and PLO assessments into college planning, program review, and budget processes. The addition of SLO prompts and guidelines in program review provides excellent opportunities to document evidence of program outcomes and an occasion to review the totality of the curriculum and resources that create a program.

The revised College's planning model and language demonstrates the essential connection between outcomes assessment and the mission of the College and how assessment integrates with program review, curriculum, planning, and resource allocation.

The El Camino College Planning Model can be found here:
http://www.elcamino.edu/administration/ir/docs/planning/PlanningModel2013_Final.pdf

Refer to the below diagrams to see, in general, how assessment integrates with other college processes.

SLO PLANNING MODEL I

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┌─────────────────────────────┐
│          Mission            │
└─────────────────────────────┘
┌─────────────────────────────┐
│    Strategic Initiatives     │
└─────────────────────────────┘
        ┌──────────────────┐
        │    Master Plan    │
        └──────────────────┘

           Program
           Review

    Curriculum              Annual
     Review                  Plan

              Assessment
               -ILOs
               -PLOs
               -SLOs
```

SLO PLANNING MODEL II

Inputs

- Mission
- Strategic Initiatives
- Master Plan
- Assessment
- Program Goals

ILOs

PLOs

SLOs

Outputs

- Instructional Changes
- Curriculum Changes
- Assessment Process Changes
- Program Review
- Annual Plan
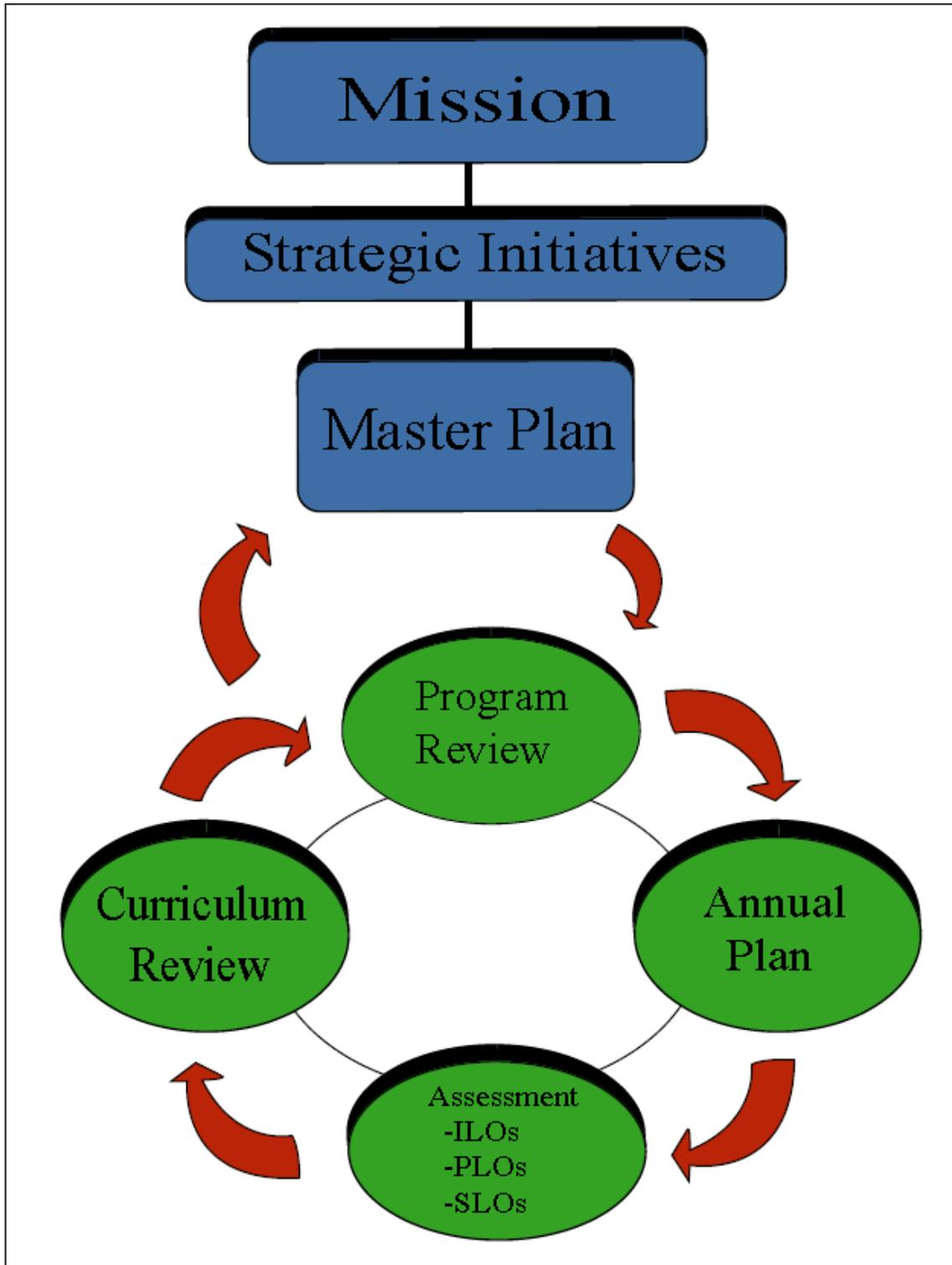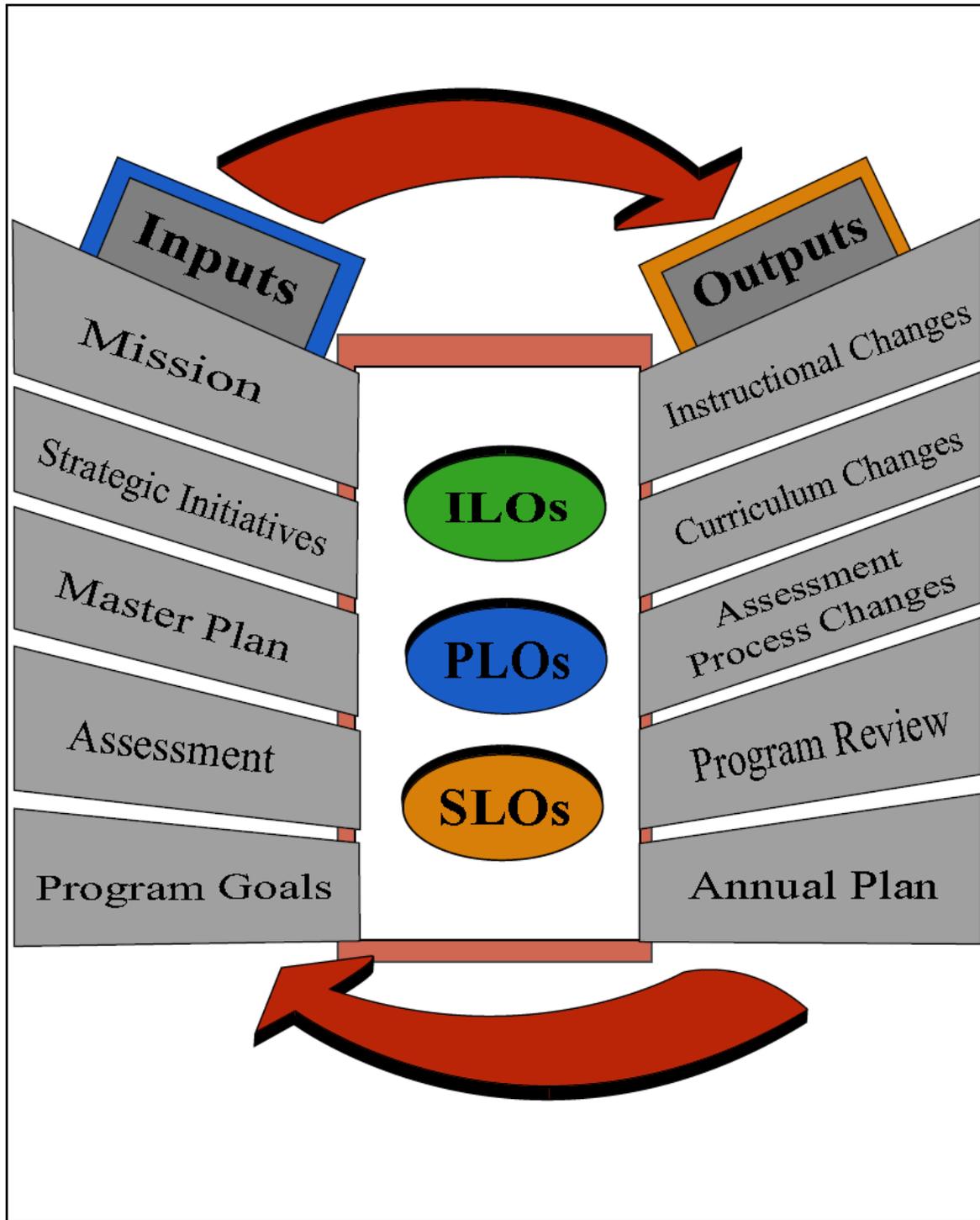
What is an SLO?

Outcomes are <u>achieved</u> results or consequences of what was learned; i.e., evidence that learning took place. SLOs are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course or program. SLOs identify what the learner will know and be able to do by the end of a course or program – the essential and enduring knowledge, abilities (skills) and attitudes (values or dispositions) that constitute the integrated learning needed by a student completing a course or program.

The Difference between SLOs and Course Objectives

Student Learning Outcomes do not represent a completely new direction in teaching and learning but rather a continuation of a trend that began with "learning objectives." Student learning outcomes are like learning objectives in their focus on the measurable results of student learning. They differ in scope, however. The main difference between student learning outcomes and learning objectives is that learning objectives are discrete, individual tasks or skills that must be accomplished before the larger, broader goals of the course can be achieved. The overarching goals of the course, however, are the student learning outcomes.

Objectives are <u>intended</u> results or consequences of instruction, curricula, programs, or activities. Objectives are often written more in terms of teaching intentions and typically indicate the subject content that the teacher(s) intends to cover.

Outcomes are <u>achieved</u> results or consequences of what was learned; i.e., evidence that learning took place. SLOs are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course or program. SLOs identify what the learner will know and be able to do by the end of a course or program – the essential and enduring knowledge, abilities (skills) and attitudes (values, dispositions) that constitute the integrated learning needed by a student completing a course or program.

- □ Don't think about content or coverage - consider what students should be able to DO with what they've learned by the end of the semester.
- □ How will students demonstrate this?
- □ What can they produce to show faculty that they have learned to apply their new knowledge?

When trying to define Student Learning Outcomes for a course, think of the big picture. SLOs:
- □ Concretely describe the broadest goals for the class, ones that require **higher-level** thinking abilities.
- □ Require students to **synthesize** many discrete skills or areas of content.
- □ Ask them to then **produce** something - papers, projects, portfolios, demonstrations, performances, art works, exams etc. – that **applies** what they have learned.
- □ Require faculty to **evaluate** or **assess** the product to measure a student's achievement or mastery of the outcomes.

	Objectives	**Outcomes**
Scope	Skills, tools, or content to engage and explain a particular subject	Overarching results - subsequent learning and application of skills learned to other courses and beyond.
Target	Details of content coverage and activities which make up a course curriculum.	Higher level thinking skills that integrate the content and activities.
Major Influence	Input – nuts and bolts	Output – Observable evidence (behavior, skill, or discrete useable knowledge) of learning.
Number	Objectives can be numerous, specific, and detailed to direct the daily activities and material.	SLOs are limited in number (a minimum of 3) to facilitate modification and improvement of teaching and learning.

In contrast, goals express the ideal vision of how students will be transformed by a course or program. Goals are often impossible to assess directly.

Goals	**Objectives**	**Outcomes**
A goal is a statement of intent or vision that is not necessarily measureable. Goals are usually found in the catalog description of a course or program.	Behaviorally measurable objectives are small steps (content knowledge, skills or attitudes) that lead toward a goal. Taken alone, assessments of each objective do not serve evidence that stated goals have been achieved. Objectives (or competencies) are listed in course outlines of record.	Student learning outcomes state the characteristics a student-created product should possess in order to demonstrate that learning has occurred. Students are asked to utilize the content knowledge, skills and attitudes listed in the course objectives. Assessments of student learning outcomes may be used as evidence that the goals of a course or program have been met.

Objective	How this objective might be reformulated as a **Learning Outcome**
(Geology) To explain the different magma geochemistries derived from partial melting of the mantle in different tectonic regimes.	Students should be able to demonstrate how magma geochemistry relates to partial melting of the mantle by contrasting the outcomes of this process in different tectonic regimes through the critical analysis of specific case studies.
(Biochemistry) To demonstrate the application of molecular graphics to drug design.	Students should be able to apply the principles underpinning the use of molecular graphics in the design of drugs to illustrate general and specific cases through a computer-based presentation.
(Engineering) To team-design concrete components of structure and foundation and integrate them into overall design structures.	Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.

SLO Statement Checklist

**EL CAMINO COLLEGE
COURSE SLO STATEMENT DRAFTING**

Reviewed by SLO Facilitator: _____ Date: _____

Reviewed by ALC Sub-committee Chair: _____ Date: _____

COURSE NAME AND NUMBER:

SLO STATEMENT Number:

(Enter Statement Here)

SLO STATEMENT Number:

(Enter Statement Here)

SLO STATEMENT Number:

(Enter Statement Here)

Aspects of a Strong SLO Statement:	YES	NO
1. **Do all the outcomes address Student Learning?**		
2. **Are the SLOs written as outcomes rather than an objective (does the language indicate an important overarching concept vs. small lessons)?**		
3. **Do the SLOs address one specific outcome or is it too broad in scope?**		
4. **Do the SLOs use active verbs (Bloom's Taxonomy) to describe the outcome?**		
5. **Are the expected outcomes tangible and measurable?**		
6. **Do the statements link to a PLO?**		
7. **Will the students understand the SLO?**		
Recommendations:		

Approved by SLO/Faciliator: _____   Date: _____

Sampling for the Assessment of Student Learning Outcomes

Prepared by Preston Reed, Institutional Research & Planning

Below is an overview of key sampling concepts along with several recommendations for those seeking to assess Student Learning Outcomes (SLOs) or Service Area Outcomes (SAOs). It is unlikely that there is one right answer to the sample size or technique that should be used, but we hope that these recommendations and notes for consideration will guide you as you conduct your assessments.

Census vs. Sampling
Assessing the entire population is called a **census**, whereas assessing a smaller subset of the population is called a **sample**.

Key considerations
When deciding whether to conduct a census or collect a sample, or when deciding how large your sample should be, there are several key items to consider.
1. **Class or program sizes –** If the program or course has a small number of students, it may be best to conduct a census. However, if there are a large number of students in the target population, a sample may be best.
2. **Length and complexity of artifacts –** If the artifact assessed is relatively short or easy to score, then it may be feasible for a larger number of students to be assessed. However, assessing some artifacts may be more time consuming due to length, necessity to norm grading scales, other factors, or some combination thereof.
3. **Size of the faculty panel reviewing artifacts –** The number of faculty members reviewing artifacts can have a large impact on the number of students than can feasibly be assessed. If the artifact is short and easy to assess, then fewer faculty members would be needed to assess a large number of students.

Sample size recommendations
In general, when attempting to obtain an accurate estimate of a population, the larger the sample, the better the estimate. However, the factors noted above can impact the feasibility of obtaining a large sample of students. Our recommendation is to aim for as large of a sample as is reasonable.

Recommended minimum sample sizes
Despite the desire to recruit and assess the entire student body within the program, this may not be feasible. Therefore, we are providing general guidelines for the minimum number of students that should be sampled. ***At minimum, we recommend that a sample consist of 10 students, or 10% of the population of interest, whichever is greater.***

Sample selection techniques
Below are some brief descriptions of some common sampling techniques as well as some things to consider when choosing a sample selection technique (more info here: http://en.wikipedia.org/wiki/Category:Sampling_techniques).

Simple random sampling – Sampling is done by randomly selecting a certain number of students or artifacts. Each student or artifact has an equal chance of being selected. With a large enough sample size, this technique may give the greatest confidence in generalizing to the population. Here is a useful tool for selecting students at random: http://www.random.org/lists/. You can paste in a list of student names, click "randomize," then select the top 10 (or 15, or 20, etc.) students.

Stratified sampling – Students or artifacts are sorted into specific subgroups (e.g., by gender, ethnicity, major, day vs. evening, etc.), then a random sample is selected from each group. This may be a useful tool for when you want to ensure that certain groups are represented in your sample.

Systematic sampling – You select students based on a pre-determined order. For example, select every n^{th} (e.g., 3^{rd}, 5^{th}, 10^{th}) student or artifact from a list. This approach may be more feasible than simple random sampling. However, it is important to consider how the order of students or artifacts may impact your findings.

Cluster sampling – Groups or clusters (typically classes or sections), and then all students within that cluster are evaluated. This approach may be useful when the assessment is best administered to an entire section rather than random students. However, it is important to consider the variation that can happen between different sections and instructors.

A note on convenience sampling – Convenience sampling is when a sample of students or artifacts is based on those who may volunteer or respond to a survey. Sometimes, this is the only way we can obtain responses. However, it is always important to consider that there may be important differences between those who agree to participate and those who don't. This should be considered when asking students to complete surveys or assessments or if only a few faculties volunteer to have SLO assessments incorporated into their course curriculum. These differences may impact your ability to generalize your findings to the population of interest.

Considerations

When choosing a sampling strategy, it is always important to consider what implications the strategy may have on your ability to generalize your findings to the rest of the population. This should also be balanced with issues of feasibility. For example, whereas a simple random sampling of students may give us the best chance of generating a representative sample, there may be issues of access or sample size.

Whenever possible, we recommend comparing key demographics of the students sampled to the population of interest (at the course, program, or other level) to get an estimate of how representative the sample population may be.

What is a PLO?

PLOs are overarching, specific, and observable behaviors evidenced by students who have achieved your program's educational objectives. Learning outcomes are stated operationally, and describe the observable evidence of a student's knowledge, skill, ability, attitude, or disposition as a result of a specific course of study, activity, or service.

Think about how to state clearly each outcome you are seeking: How would you recognize it? What does it look like? What will the student be able to do?

PLO Statement Checklist

EL CAMINO COLLEGE
PLO STATEMENT DRAFTING WORKSHEET

Reviewed by SLO Facilitator: _____ Date: _____

Reviewed by Sub-committee Chair: _____ Date: _____

PROGRAM NAME: **DIVISION:**

*PROGRAM MISSION***:**

DEVELOP INTO

*PROGRAM GOALS***:**

DEVELOP INTO

*PROGRAM LEVEL OBJECTIVES***:**

Aspects of a Strong PLO Statement:	YES	NO
1. **Does the outcome address Student Learning?**		
2. **Is the PLO written as an outcome rather than an objective (does the language indicate an important overarching concept vs. small lessons)?**		
3. **Does the PLO address one specific outcome or is it too broad in scope?**		
4. **Does the PLO use active verbs (Bloom's Taxonomy) to describe the outcome?**		
5. **Is the expected outcome tangible and measurable?**		
6. **Does the statement link to an ILO?**		
7. **Will the students understand the PLO?**		
Recommendations:		

Approved by SLO/ALC Co-Chair: _____   Date: _____

Process for Changing SLO/PLO Statements

1. Initiate discussion between ECC and CEC faculty on potential change of the statement(s).

2. Take the proposed draft to a department meeting.

3. Once minutes of the meeting have been approved and there is a clear record, e-mail the change request to the Academic Affairs Office/SLO Admin and SLO Coordinators, and copy the Division Facilitator, Division Dean, Associate Dean of Academic Affairs, and Compton Center SLO Coordinator.

4. Division Office/Facilitator to also provide timelines for the new or revised SLO.

5. Academic Affairs Office/SLO Admin will make the change(s) in TracDat and Alignment Grid(s).

6. Once the revised Alignment Grids are received from the Academic Affairs Office/SLO Admin, the Division Facilitator will have the appropriate faculty mark the re-alignments of the new statements to the ILOs and return the updated Alignment Grid to the Academic Affairs Office/SLO Admin.

7. SLO Admin will then upload the revised Alignment Grid to ECC and Compton SLO websites.

8. Changes can be made to the course outline of record upon its next review.

What is an SAO?

A Service Area Outcome (SAO) is a statement about what a student or client will experience, receive, or understand as a result of a given service.

SAOs identify what the student services and administrative units intend to accomplish or achieve in support of student learning.

Assessment is the continuous process of collecting, evaluating, and using information to determine if and how well performance matches learning or service expectations. For assessment to be truly effective, it must be authentic, meaningful, reflective, and self-regulated. The purpose of assessment is to use the results, positive or negative, to inform meaningful dialogue about how instruction and instructional and non-instructional services can be modified to provide students the appropriate tools to engage in the learning process and sustain institutional effectiveness

> *How are SAOs different than SLOs/PLOs?*
> Student Learning Outcomes (SLOs) are statements about what students will think, know, feel or be able to do as a result of an educational experience. SLOs exist at the course, program (PLOs), and institutional (ILOs) level. Alignment grids demonstrate alignment from the course up through program and institutional levels.

Your department (faculty, managers, and classified staff) has the responsibility for SAOs and thus, has the authority on how they will be designed, developed, and assessed. SAO documentation should include the following:
- list of current outcomes
- methods that will be or were used to measure the outcome
- target/standard for the outcome to be considered successful
- timeline for assessment
- assessment reports, including assessment data, analysis, and planned actions

Service Area Outcome Statements

A SAO statement expresses what a student or client will experience, receive, or understand as a result of a given service.

A client can be anyone receiving a service, including:
- students
- faculty
- staff
- community members

A service can include the following:
- Training sessions
- Development of facilities
- Professional development
- Information sessions or student orientations
- Development of schedules, catalogs, etc.

SAOs are statements that identify client responses to a certain service that your department provides. They identify activities that are critical and central to the unit. Designed and developed by your

department, these statements provide evidence that positive student/client reaction has occurred as a result of a specific service. These statements are very similar to SLOs in that they examine the result of an experience but SAOs deal exclusively with non-instructional services provided to students or other members of the campus community.

> *Sample SAO*: The EOPS program might have the following SAO: "Students who complete their contacts and are eligible for a book voucher have increased success and retention rates compared to students who do not fulfill our requirements."

> *Sample SAO*: The Outreach & Recruitment office might have the following SAO: "After attending an ECC information session, prospective students will be more knowledgeable regarding ECC programs, services and the steps of enrollment."

> *Sample SAO*: A Printing Services department might have the following SAO: "Faculty will experience improved access to Printing Services by making it easy to submit print jobs via the web."

> *Sample SAO:* The Human Resources office might have the following SAO: "Job interview panels trained on diverse behaviors and styles will conduct themselves with increased awareness."

SAO Assessment

SAOs may be measured in a variety of ways. Perhaps the most common means of assessing SAOs are client surveys or interviews/focus groups. These tools can provide your department with feedback about unit structures, processes, and the client experience. Internal and external data sources may also provide the information needed to determine if the outcome was successful.

Assessment Schedule

Assessment Schedule (Timeline) specifies the time frame in which a plan/course of action will be assessed and who will administer the assessment. The timeline for SAO assessment depends on the number of SAOs for the department, the means of assessment data collection, and availability of department resources. Units do not need to assess all SAOs simultaneously—unless the unit deems such a timeline necessary and realistic given unit resources. Units may alternate the assessment of SAOs over months, quarters, or years. For example, if ECC's Payroll department identifies six SAOs, the unit may assess two SAOs per year, resulting in a three-year assessment cycle for a given SAO.

SAO Alignment with Strategic Initiatives

SAOs should be aligned with ECC SIs.

How Are SAOs Used?

SAOs are connected to planning. The primary purpose of SAO identification and assessment is continuous improvement. Assessment results should provide a means for refining structures, processes, and strategies to better meet unit objectives or SAOs. After your unit identifies and assesses SAOs, the assessment results should be compiled and discussed with unit staff. The purpose of these discussions is to reflect on outcomes, brainstorm strategies for unit service improvement, and analyze unit objectives or SAOs to determine if adjustment is necessary. Improvements could include increased staff development, equipment purchases, software modifications, and process development. SAO assessment results should also be documented in a formal report.

Bloom's Taxonomy- Objectives and Outcomes

Student learning outcomes should address relevant outcomes for each of these domains but must be appropriate to the course.

Knowledge – Cognitive Domain

Objectives	Outcomes
Basic Knowledge	More Sophisticated
Higher Level Thinking	Critical Thinking

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Student re-members or recognizes information or specifics as communicated with little personal assimilation.	Student grasps the meaning behind the information and interprets, translates, or comprehends the information.	Student uses information to relate and apply it to a new situation with minimal instructor input.	Student dis-criminates, organizes, and scrutinizes assumptions in an attempt to identify evi-dence for a conclusion.	Student crea-tively applies knowledge and analysis to inte-grate concepts or construct an overall theory.	Student judges or evaluates information based upon standards and criteria, values and opinions.
Cite	Convert	Apply	Analyze	Assemble	Access
Label	Define	Chart	Compare	Create	Appraise
List	Describe	Compute	Contrast	Construct	Conclude
Enumerate	Discuss	Demonstrate	Correlate	Design	Critique
Identify	Estimate	Determine	Diagram	Develop	Decide
Imitate	Explain	Dramatize	Dissect	Formulate	Defend
Match	Generalize	Establish	Differentiate	Generate	Diagnose
Name	Identify	Make	Distinguish	Hypothesize	Evaluate
Quote	Illustrate	Manipulate	Infer	Initiate	Judge
Recall	Locate	Prepare	Investigate	Invent	Justify
Reproduce	Paraphrase	Project	Limit	Modify	Rank
State	Restate	Solve	Outline	Reframe	Recommend
Write	Summarize	Use	Separate	Synthesize	Support

Skills and Abilities – Psychomotor Domain

Objectives
Basic Knowledge
Basic Skills Level

Outcomes
More Sophisticated Skills
Higher Level Abilities
Critical Understanding of
   Performance

Observe	Model	Recognize Standards	Correct	Apply	Coach
Students translate sensory input into physical tasks or activities.	Students are able to replicate a fundamental skill or task.	Students recognize standards or criteria important to perform a skill or task correctly.	Students use standards to evaluate their own performances and make corrections.	Students apply this skill to real life situations.	Students are able to instruct or train others to perform this skill in other situations.
Hear Identify Observe See Smell Taste Touch Watch *Usually no outcomes or objectives written at this level.	Attempt Copy Follow Imitate Mimic Model Reenact Repeat Reproduce Show Try	Check Detect Discriminate Differentiate Distinguish Notice Perceive Recognize Select	Adapt Adjust Alter Change Correct Customize Develop Improve Manipulate Modify Practice Revise	Build Compose Construct Create Design Originate Produce	Demonstrate Exhibit Illustrate Instruct Teach Train

Attitudes – Affective Domain

Objectives
Elementary Values and Behaviors
Inherited Value System
Egocentric View

Outcomes
More Highly Developed Attitudes
Well Thought-Out Value System
Higher Level Abilities to Identify and
Articulate Others' Values

Receiving	Responding	Valuing	Organizing	Characterizing
Students become aware of an attitude, behavior, or value.	Students exhibit a reaction or change as a result of exposure to an attitude, behavior, or value.	Students recognize value and display this through involvement or commitment.	Students determine a new value or behavior as important or a priority.	Students integrate consistent behavior as a naturalized value in spite of discomfort or cost. The value is recognized as a part of the person's character.
Accept	Behave	Accept	Adapt	Authenticate
Attend	Comply	Adapt	Adjust	Characterize
Describe	Cooperate	Balance	Alter	Defend
Explain	Discuss	Choose	Change	Display
Locate	Examine	Differentiate	Customize	Embody
Observe	Follow	Defend	Develop	Habituate
Realize	Model	Influence	Improve	Internalize
Receive	Present	Prefer	Manipulate	Produce
Recognize	Respond	Recognize	Modify	Represent
	Show	Seek	Practice	Validate
	Studies	Value	Revise	Verify

A Guide to Reporting Assessments

El Camino College/Compton Center
Tracdat SLO Template
This template (Word document) can be downloaded from the ECC SLO website:
http://www.elcamino.edu/academics/slo/docs/TracDat-SLOTemplate_FORM_Rev2015-08-18.doc

How to Use this Template: If you wish, you may fill out this template and transfer (copy & paste) the information into Tracdat once it is complete. This is a WORD document. Fields will expand as you type.

How to Access Past Reports and Alignment Grids: To access your past SLO reports, Alignment Grids, and past assessment reports, select the *Documents Repository* tab under *Documents* located on the left side of the main screen when you log in to Tracdat. Past reports were saved as WORD documents.

How to Log into Tracdat: https://elcamino.tracdat.com   Use your ECC or Compton log-in and password.

Due Date: Assessment Reports are due the 3^rd week of the following semester.

COURSE PLANNING: COURSE LEVEL PLAN - ASSESSMENT METHOD DESCRIPTION 📊

Course Number: **Course Name:**

SLO or PLO Number and Statement:

Note: This is a "view only" screen. Contact your facilitator if you wish to change your SLO or PLO Statements.

Faculty Assessment Leader: **Faculty Contributing to Assessment:**

Course SLO Assessment Cycle: *Note: This is a "view only" screen.   New timelines beginning with Fall 2014 through Spring 2018 will be developed by each Program in Spring and input into Tracdat for you.*

Identify Assessment Method: *Choose ONE item that most closely relates to your assessment method (mark the box next to Method with an X). If more than one assessment tool is being used for this assessment select "Multiple Assessments." You will be able to explain the assessment method(s) in more detail in the following section.*

	Case Study		Journal/Log		Presentation/Skill Demonstration
	Essay/Written Assignment		Laboratory Project/Report		Project
	Exam/Test/ Quiz		Multiple Assessments		Standardized/Licensing Exam
	Fieldwork Internship		Performance		Survey/Focus Group
	Homework Problems		Portfolio		Term/Research Paper

Assessment Method Description: *In a sentence or two, describe the planned course SLO assessment. If you wish, you can attach the actual assessment instrument by first selecting "Save Changes", then selecting "Relate Document."*

HINT: Be sure to "Save Changes" to activate the "Relate Document" button.

Enter text here.

Standard and Target for Success: *Describe the standard you will use to determine success in your assessment. If you are using a rubric, attach the rubric. Include your target for student success for this SLO. This target for student success should be based on a clear standard. For example:*
> *Based on Percentages: "It is expected that 85% of students will score 75% or above on this SLO.*
> *Based on Rubric: "It is expected that X% of students will score 4 or above on this SLO."*

Enter text here.

Related Documents: *This section lets you upload documents. You may wish to upload your actual assessment tool, rubric or any other relevant material here.*

RESULTS 🏁

Assessment Data & Analysis Date*: Enter the date this assessment was completed. This may be different than the "Semester and Year Assessment Conducted." For example, since Assessment Reports are due the 3rd week of the following semester. you may have entered the data and analysis in the spring, but conducted the assessment the previous fall semester.* **Enter date here (MO/DA/YEAR format).**

In Tracdat, when you click on the box, it will bring up a calendar. Highlight and click on the date and it will enter that date in the box.

Assessment Data & Analysis: *What are the results of your assessment? Provide the assessment data. Summarize the patterns observed in the data. What were the most important findings from the data?*

Enter text here.

Semester and Year Assessment Conducted: *Enter the semester and year the assessment was conducted**. This may be different than the "Date Assessment Data & Analysis Entered." For example, you may have conducted the assessment in the fall but are entering the results in the spring.* **Enter Semester and Year here.**

Note: This semester and year must match the current assessment timeline for this SLO.

Standard Met? *Was the target you set in the "Standard and Target for Success" section met? (Mark the box with an X.)*

☐ **Standard Met**   ☐ **Standard Not Met**

***Note:** If the target was not met, consider re-assessing this SLO sooner than indicated on the timeline. If the target has been met consistently, consider revising your SLO or developing a new SLO statement. If you plan to assess this SLO or PLO earlier than indicated on your timeline, enter it as an "Action Item" and provide the date you plan to re-assess this SLO.*

Related Documents: *This section lets you upload documents. You may wish to upload your actual assessment data, graphs, or any other relevant material here.*

Action Plan

Describe Actions Needed to Improve Student Learning: *Address as many categories as needed.*

Teaching Strategies: *Needed changes to teaching strategies to improve student learning.*
Curriculum Changes: Needed curricular changes (pre-requisites, major topics, objectives, etc.).
Program/College: Anything the Program or College should do to support any of these changes.
SLO Assessment Process: Needed changes to the SLO statement or assessment process based on results.

Action (One action plan per row.) Enter only those actions for which you wish to develop a plan.	**Action Due Date**	**Action Category** *Teaching Strategies* *Curriculum Changes* *Program/College Support* *SLO Assessment Process*
Enter text here.	Enter Date here	Enter Category here.
Enter text here.	Enter Date here	Enter Category here.
Enter text here.	Enter Date here	Enter Category here.
Enter text here.	Enter Date here	Enter Category here.

Follow Up
(Note: This section becomes active in Tracdat once an action has been entered.)

Consider the following prompts for this section. What Action was taken? When was the Action implemented? What are the implications of the observations and/or data that resulted from implementation of the Action? Describe any changes to student learning that were observed and/or describe any data that resulted from the Action. (Note: These observations may be anecdotal or preliminary with additional information provided at a later date.) What other follow-up or Action(s) should be taken, if any?
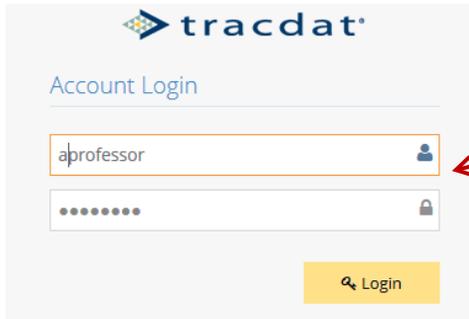
Enter text here.

TracDat Quick Start Guide - Entering Reports

(Revised 09.15.2015)

Log into TracDat - Go to: http://elcamino.tracdat.com

If you have an older version of Internet Explorer (before version 11) use Chrome or Firefox.

Steps for entering in a SLO report

Use your ECC ID and Password.

Adding Assessment Methods

1) Select the program from the top drop down menu.

El Camino: Course SLOs (BSS) - Childhood Education

This column shows the number of assessments that are currently due. The other columns reference the Assessment Method, Results, etc. associated with that SLO.

2) You will see a list of all the courses in your program. The courses with a black triangle on the left side are courses that have one or more SLO assessments due for the filtered semester.

NOTE: Ignore the zeros if there is no black triangle on the left as your SLO is not currently due for assessment.

Course Planning Summary - Owned

		Courses	Course SLOs	Assessment Method Description	Results	Actions	Follow-Up
▶	✔	ECC: ASTR 12 - Astronomy Laboratory	1	0	0	0	0
	✔	ECC: ASTR 13 - Astronomical Optics	0	0	0	0	0
	✔	ECC: ASTR 20 - The Solar System	0	0	0	0	0
▶	✔	ECC: ASTR 25 - Stars and Galaxies	1	1	1	1	0

3) Click the arrow next to the SLO for which you wish to enter data.

4) Click on the plus sign "+" on the right side to add a new assessment.

Or, click on the arrow next to **Assessment Method Description** to locate a current assessment method.

5) Fill in all required information. Remember to include a clearly stated standard for success. You will be able to attach (relate) your rubric and your assessment on the next screen.

Reviewer Comments are optional. However, this is a good place for faculty, facilitators or deans to make comments or recommendations.
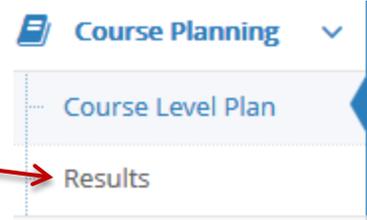

6) Note: Be sure to click "SAVE" located at the **top right** before leaving a screen.

Adding Results

7) Go to the Menu on the left to *Course Planning* .
   Click on *Results.*

	Course Planning ∨
	Course Level Plan
	Results

8) To enter in the results click on the arrow next to the appropriate SLO.

> * Asterisk next to a Course in the dropdown indicates that the Course is not owned by Discipline.

▸ ② **SLO #1 Logic of the Scientific Method** On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to describe and contrast specific research methods in the study of lifespan development (e.g.,longitudinal, cross-sectional, sequential designs)as well as assess the strengths and weaknesses of each.

▸ ② **SLO #2 Fundamental Principles** On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to identify, explain, and compare these aspects of the major theoretical perspectives of lifespan development: main focus, key concepts, and basic assumptions.

▸ ② **SLO #3 Everyday Application** On examination (e.g., m/c, T/F, fill-in, matching, essay), written essay, research paper, and/or oral presentation, students will be able to apply fundamental lifespan principles (e.g., temperament, attachment, personality, parental style, milestones, interpersonal and familial relationship) in their efforts to understand everyday life experiences (e.g., child rearing, bereavement).

9) Click on the plus sign on the right side to open the fields.

▾ ① **SLO #4 Solve Application Problems** Solve college algebra level application problems and use technology.

> ▸ 📊 **Exam/Test/Quiz** The fox population ⊕
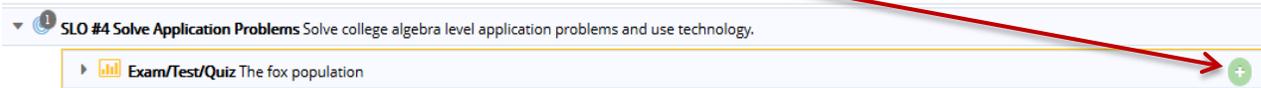
10) Scroll down and enter the results.

* Assessment Data & Analysis Date	08/31/2015
* Assessment Data & Analysis	
* Semester and Year Assessment Conducted	▾
* Standard Met?	▾
* Faculty Assessment Leader	?
Faculty Contributing to Assessment	?
Reviewer's Comments	?

11) Note: Be sure to click "SAVE" located at the **top right** before leaving a screen.

💾 Save ▾

Adding Actions
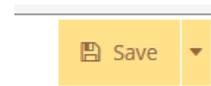
12) Scroll down and select plus sign (+) next to the **Action**. Be sure to enter a date when the action will be completed.
The Action date should be sometime during the next time the class is taught, or within a year of the assessment you just entered. Remember to save on the top right side.

Actions	⊕
Related Documents	⊕

13) Related documents can also be added from this screen, the icon is right below the action.

Adding Follow Ups

14) Click on the arrow next to the action for which you wish to add a follow up, and then click on the plus sign on the right side to add the follow up.
The follow up section should be completed after the Action has been implemented. Enter the results of your actions in the "Follow Up" section. This can be informal or formal data.

▼ Actions ⊕

Action Research and distribute to current Math 12 instructors teaching strategies recommended by the American Mathematical Association of Two Year Colleges (AMATYC) that pertain to developmental mathematics. 06/06/2014 ☑ 🗑
Action Category Teaching Strategies

Follow-Up ⊕

15) Remember to save your work before you leave the screen or when you make any changes to your report.

💾 Save ▾

Additional SLO Resources

Training Materials: http://www.elcamino.edu/academics/slo/tracdattraining.asp
Training Dates: http://www.elcamino.edu/academics/slo/assessment-training-and-facilities.asp
Division Facilitator Contact Information: http://www.elcamino.edu/academics/slo/alc.asp

EL CAMINO COLLEGE

Assessment of Learning Committee (ALC) New Member Guide

Information for New ALC Members

Assessment of Learning Committee

Purpose and Function

The Assessment of Learning Committee (ALC) strives to improve student success by coordinating assessment planning, developing sustainable methodologies and procedures, providing ongoing training, and promoting authentic communication on campus and with the community.

Committee Composition

The ALC is comprised of a faculty representative from each of the academic divisions on campus, and with representation from each of the following areas:
- Deans and Associate Deans
- Institutional Research and Planning
- Student Services
- Academic Affairs
- Academic Senate

Committee Governance

The ALC is a subcommittee of the Academic Senate. The work performed by the ALC may include the following committee actions:
- Produce support materials to guide faculty in the assessment process
- Ensure compliance with ACCJC accreditation standards
- Make decisions regarding assessment and then provide faculty training
- Organize SLO-related data collection
- Organize Institution Learning Outcomes assessment

ILO Assessment

The ALC oversees the Institutional Learning Outcomes assessment which takes place annually, cycling through one outcome each year. Data is gathered from multiple programs and areas across campus. (See pages 1-5 and 1-6)
- Click here to view ILO Statements. Click here to view Archived ILO Reports.

GE Assessment

General Education (GE) Areas are assessed through the data gathered during ILO assessment. http://www.elcamino.edu/academics/slo/geo.asp

Roles within the ALC

➢ **Coordinator** – Campus coordinators are full-time faculty who chair the ALC and facilitator meetings, working closely with the Academic Affairs office.
➢ **Facilitator** – Facilitators represent each academic division, working to disseminate SLO information to faculty and staff, and to organize the assessment process in ways that are effective within their area.

See **Roles and Responsibilities** below.

SLO Roles and Responsibilities

	Assessment of Learning Committee (ALC)	TracDat	SLO/PLO Process	ACCJC Reports	Public Access
Assoc. Dean	Oversee all aspects	Oversee all aspects	Oversee all aspects	Primarily responsible for writing the report	Oversee all aspects
Coordinators	▪ Chair committee ▪ Develop meeting agendas/notes ▪ VP of Instructional Effectiveness also serves on Program Review ▪ Attend Senate Meetings ▪ Oversee ILO Expert Groups ▪ Disseminate ILO findings ▪ Develop SLO newsletter ▪ Develop end-of-year report	▪ Provide Ongoing Training to ALC/Facilitators/Faculty/Staff/Deans ▪ Generate reports ▪ Update user lists and permissions ▪ Troubleshoot problems ▪ Develop *User Guide* & training videos ▪ Add courses	▪ Provide Ongoing Training in SLO and PLO statement development ▪ Provide Training in SLO and PLO assessments ▪ Spot Check SLO/PLO statements & reports and offer recommendations ▪ Oversee timelines for compliance	▪ Collect evidence ▪ Assist in writing/editing ▪ Provide evidence of dialogue	▪ Ensure access to statements and Reports ▪ Keep ECC and CEC SLO website updated
Facilitators	▪ Attend ALC meetings ▪ Review SLO and PLOs for quality and make recommend-ations ▪ Provide reports and updates including 3-week report on course cancelations that affect timelines ▪ Develop end-of-year report ▪ Provide guidance decisions related to ILOs/PLOs/SLOs ▪ Provide materials for newsletter	▪ Provide training to faculty within own division ▪ Generate and review status reports ▪ Review (spot check) of reports in TracDat ▪ Report user problems to Coordinators	▪ Review SLO and PLO statements and assessments for quality and make recommendations ▪ Oversee Alignment and Timelines (Ensure timelines are being met) ▪ Chair Division SLO committee meetings ▪ Flex Day presentations to divisions ▪ Recommend materials (Rubrics/assessments/strategies to be shared campus-wide) ▪ Respond to RFIs from Deans/Coordinators ▪ Report any changes made to timeline by end of third week of semester	▪ Collect evidence such as agendas, minutes, emails, documented discussions and forward to Coordinators ▪ Provide evidence of dialogue	▪ Report any changes needed to ECC and CEC SLO website to Isabelle Peña (SLO Admin)
Deans	▪ One dean serves as Dean's Representative ▪ Associate Deans serve where applicable ▪ Provides updates to Deans ▪ Provides recommendations to ALC	▪ Generate and review reports	▪ Review SLO and PLO statements and assessments for quality and make recommendations to faculty ▪ Meet with Facilitator regularly ▪ Report any changes made to timeline by end of third week of semester	▪ Provide evidence of dialogue	▪ Report any changes needed to ECC and CEC SLO website to Isabelle Peña (SLO Admin) and copy division facilitator
Faculty		▪ Enter SLO/ PLO reports in TracDat	▪ Serve as a Department Lead ▪ Develop statements and assign alignment ▪ Conduct assessments per timeline ▪ Follow up on action Items ▪ Recommend materials (Rubrics/Assessments/Strategies to be shared campus-wide.)	▪ Provide evidence of dialogue	▪ Report any changes needed to SLO website to facilitators in your division

Resources for Committee Members

SLO/PLO Statements

The process for writing SLO statements should be a collaborative one in which all faculty responsible for teaching a course participate in the creation of its outcome statements. As assessment is a process, it is expected that the statements for any given course may evolve over time. The process for changing SLO statement should be similarly collaborative. Consensus on statement changes should be documented, whether through e-mail or department meeting minutes, before communicating that change with the Academic Affairs Office. Up-to-date statements are posted on the school's SLO website.

http://www.elcamino.edu/academics/slo/timelines-align-grids.asp

SAOs

Service Area Outcomes (SAOs) are outcomes statements for the service and counseling areas such as the Special Resource Center, the Library & Learning Resources Unit (LLRU), First Year Experience, and Financial Aid. For a full list of applicable service areas see http://www.elcamino.edu/academics/slo/SAOlinks.asp. SAOs follow a timeline and assessment structure with set standards and goals, as do SLOs, PLOs, and ILOs.

SLO Timelines/Alignments

Timelines and Alignment grids are also posted on the school's website.

http://www.elcamino.edu/academics/slo/timelines-align-grids.asp

If an SLO or PLO statement changes, the alignment may need reconsideration. Timelines would only be adjusted if the course is cancelled for a given semester, and facilitators would communicate the cancellation and next viable assessment date (usually the next semester) to the Academic Affairs office.
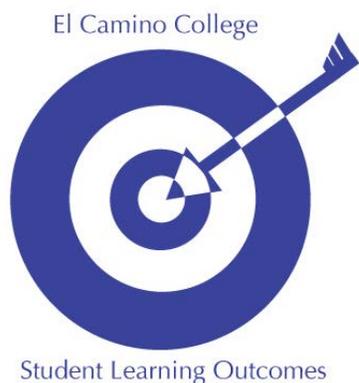
Quality SLO Assessment Checklist

____ 1. **Completion**
- ❑ Are all sections of the report complete (lead faculty, target, data and analysis, action plan with due date)?
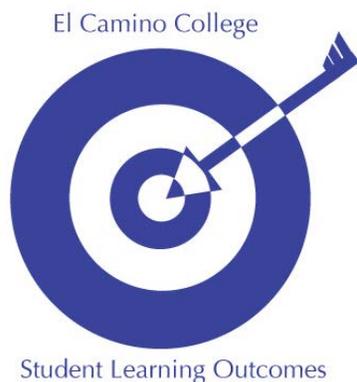- ❑ Is the information in the appropriate place?

____ 2. **Target**
- ❑ Is the target clearly defined?
- ❑ Is it stated that the target has been met/not met?
- ❑ Is it clear why the target was met/wasn't met?

____ 3. **Data with Analysis**
- ❑ Is there appropriate data to support whether the target was met or not?
- ❑ Have faculty analyzed the data (i.e. given a short narrative interpretation of the results)?

____ 4. **Action Plan**
- ❑ Is the action plan stated an appropriate result of the data and analysis?
- ❑ Is it dated appropriately (i.e. the next time the course is taught, or after)?

Quality PLO Assessment Checklist

____ 1. **Completion**
- ☐ Are all sections of the report complete (lead faculty, target, data and analysis, action plan with due date)?
- ☐ Is the information in the appropriate place?

____ 2. **Target**
- ☐ Is the target clearly defined?
- ☐ Is it stated that the target has been met/not met?
- ☐ Is it clear why the target was met/wasn't met?

____ 3. **Data with Analysis**
- ☐ Is there appropriate data to support whether the target was met or not?
- ☐ Is the scope of the findings appropriate for this PLO?
- ☐ Is the sample size of recommended limits (i.e. multiple courses used)?
- ☐ Have faculty analyzed the data (i.e. given a short narrative interpretation of the results)?

____ 4. **Action Plan**
- ☐ Is the action plan stated an appropriate result of the data and analysis?
- ☐ Is it a program wide action that can be implemented?
- ☐ Is it dated appropriately (i.e. within reasonable limits and before the next assessment)?
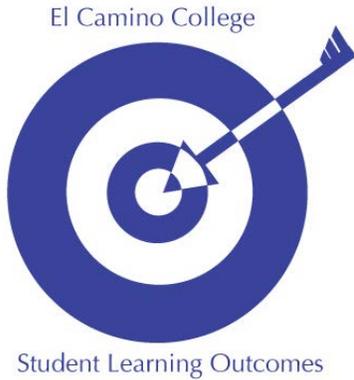
Follow Up Procedure in TracDat

Many courses are now being assessed for the second or third time. Earlier assessments include Actions and an Action Due Date, and these Actions need to have Follow Ups completed.

Faculty members are asked to review previous Assessment Data, Analysis, and Actions and provide a Follow Up on completion of planned Actions and any other observations.

Type of Action:	**Follow Up should include:**

- ☐ Teaching Strategy — Was the Action implemented and did it result in improved student success?
- ☐ College Support — Was support provided? If not, was the request included in the division action plan?
- ☐ Curriculum Changes — Has the process begun to change or introduce new curriculum?
- ☐ Assessment Process — Was the process revised or the statements changed for the next assessment?

Entering "Follow Up" information into TracDat allows us to document actions taken as a result of assessment as well as to reflect on any impact of completed actions. This is the final step in the 'Assessment Cycle' outlined in the SLO Handbook and helps the college demonstrate that assessment results are used to refine instruction and services (close the feedback loop) and modify course, program, and services goals and outcomes.

When to follow up?

The following are possible models:

1. **Complete the follow up when the next course assessment is submitted.**
   This is the recommended plan as it usually will coincide with the assessment cycle. Most courses will enter a follow up of the past year's assessment, once a year, when the course, not just that SLO, is assessed again.
2. **Have a once-a-year division follow up date.**
   This date will be set by the division as the time when faculty will go back into previously completed assessments with actions due and complete the follow ups.
3. **Utilize an "Action" report that will be run by the date that actions are due.**
   This report (generated annually or each semester) can be used to complete follow ups based on the time when faculty indicated actions would be completed.

Online Resources

El Camino College SLO Website
http://www.elcamino.edu/academics/slo/

El Camino College, Compton Center SLO Website
http://www.compton.edu/academics/slo/index.aspx

Archived SLO/PLO Assessments
http://www.elcamino.edu/academics/slo/assessmentreports.asp

TracDat
https://elcamino.tracdat.com/tracdat/

SLO Handbook
http://www.elcamino.edu/academics/slo/docs/SLOandPLOAssessmentHandbook_2014-11-05.pdf