STUDENT LEARNING OUTCOMES HANDBOOK

Mendocino College

A comprehensive guide to creating and assessing
Student Learning and Service Area Outcomes

Student Learning Outcomes Team

2016

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INTRODUCTION

Preface

According to the Accreditation Commission for Community and Junior Colleges (ACCJC)

> An effective institution ensures that its resources, programs, and services, whenever, wherever, and however delivered, support student learning and achievement. The effective institution ensures academic quality and continuous improvement through ongoing assessment of learning and achievement and pursues institutional excellence and improvement through ongoing, integrated planning and evaluation.[1]

Beyond retention, persistence, completion and transfer, student success is most authentically determined by the assessment of Student Learning Outcomes (SLOs) and Service Area Outcomes (SAOs). All full-time faculty and designated staff must be involved in SLO assessments. Article 7.9.10 of the MCFT Collective Bargaining Agreement states that is the responsibility of all full-time faculty to "develop and assess student learning outcomes and/or service area outcomes in the discipline or unit, at both course and program level as applicable." Part-time faculty are strongly encouraged to assess SLOs; course assessment can be counted for Flex time, and there is also a stipend available for each class assessed. Management, Supervisory and Confidential Employees are expected to participate in "the process of developing and assessing Service Area Outcomes (SAOs) and Student Learning Outcomes as applicable to the position" according to the M/S/C Handbook.

It is important to realize that we are all already doing assessment of courses and services. We are always thinking about what is working well and what could use improvement and how we might improve. This is what makes us improve. SLOs are a way of doing this in a concrete, data-driven way. And we use SLO results to assess courses, programs and our institution; to justify requests in our program reviews; to justify needs in our department. SLOs are essential to the continuous improvement of Mendocino College.

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[1] ACCJC Accreditation Standards, June 2014

Currently, SLO information is found electronically in 3 locations: CurricUNET; the college Portal; and the college public Website.

Document	Location	URL
SLOs (course/program)	CurricUNET	www.curricunet.com/mendocino
	Public website	www.mendocino.edu/academics/student-learning-outcomes
SLO Assessment Schedule	Portal	https://portal.mendocino.edu/TeamSites/SLO/Public%20Documents/SLO%20ASSESSMENT%20INFORMATION/Assessment%20Schedules/Master%20SLO%20Assessment%20Schedule.xls
Completed course SLO assessments	Portal	https://portal.mendocino.edu/TeamSites/SLO/Public%20Documents/Forms/AllItems.aspx?RootFolder=%2fTeamSites%2fSLO%2fPublic%20Documents%2fSLO%20ASSESSMENT%20INFORMATION%2fCOMPLETED%20COURSE%20SLO%20ASSESSMENTS%20BY%20DISCIPLINE&FolderCTID=&View=%7b40003547%2d0268%2d441B%2d9663%2d883AA8F50F3B%7d

See Appendices for directions on accessing this information

SECTION 1: CREATING COURSE-LEVEL STUDENT LEARNING OUTCOMES

Student Learning Outcomes (SLOs) versus Course Objectives

Student Learning Outcomes are the knowledge, skills, abilities, and/or competencies that students have at the completion of a course, program or series of activities/interactions, which can be measured and evaluated. SLOs define what a student will be able to **do**, in a clearly observable and measurableway, as a result of what they have learned.

Course objectives, on the other hand, define knowledge, behavior or skills *you intend to teach*, and which you expect students to learn. According to the Accreditation Commission for Colleges and Junior Colleges (ACCJC) "Generally, objectives specify discrete steps taken within an educational program to achieve an outcome. They are the means, not the ends." According to the State-wide Academic Senate for California Community Colleges

> Objectives are the key elements which must be taught each time the course is taught. Course SLOs are the intended learning outcomes; **objectives are the things that must be taught/covered in order to achieve those learning outcomes.** Sometimes, these things are very close; often, they are quite distinct.

In a broad sense, you may want students to know, comprehend, understand, or be able to do certain things as course outcomes. For example, you may want a student to "understand the value and use of outside sources, including the library, in academic study and writing." "Knowledge", "comprehension" and "understanding" are course goals, but are not measurable in and of themselves; a *student learning outcome* would be that a student **will be able to** "utilize basic researching strategies, and incorporate both primary and secondary texts into academic essays." The measurable action words in that sentence are "utilize" and "incorporate". How a student utilizes or incorporates basic research strategies will be determined by your assignments and that assessments that measure how students _demonstrate_ *their understanding or ability in an objectively measurable way*.

Assessing a student learning outcome, or determining the degree to which students achieved the course objectives by observing their application of their knowledge or skills, requires that SLOs are written with **measurable and observable action words**.

Measurable Action Words

Bloom's Taxonomy of Learning Domains (rev. 2001) is the standard reference for measurable action words pertaining to student learning. Each of the 6 domain categories (Remember, Understand, Apply, Analyze, Evaluate, Create) can be thought of in terms of *course objectives*.
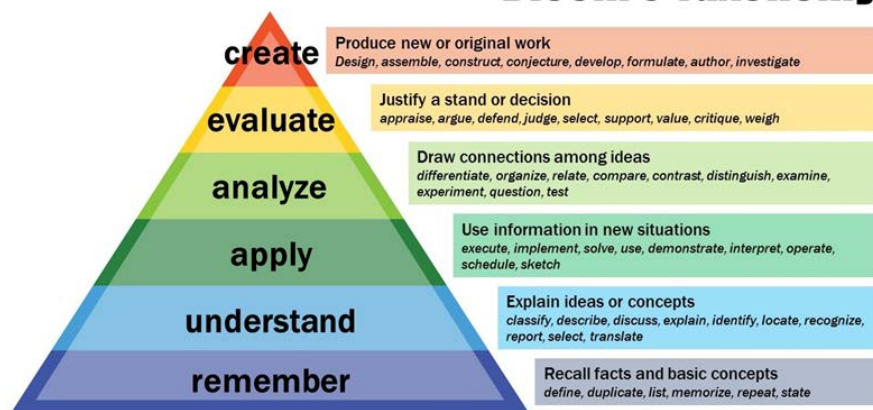
Bloom's Taxonomy

Figure 1: Bloom's Taxonomy of Learning Domains

The following chart, based on Bloom's Taxonomy, will help you identify appropriate SLOs that relate to your course objectives.

Course Objective	Student Learning Outcomes		
Remember	List Label Quote	Name State Select	Define Count Recite
Understand ("Know")	Explain Summarize Generalize	Paraphrase Describe Predict	Illustrate Provide examples Infer
Apply	Use Compute Calculate	Solve Demonstrate Classify	Apply Construct Translate
Analyze	Analyze Categorize Outline	Compare Contrast Diagram	Separate Detect Subdivide
Evaluate	Judge Recommend Determine	Interpret Measure Test	Justify Order Assess
Create	Create Design Devise	Invent Transform	Develop Revise

Bloom's Taxonomy can be considered a hierarchal structure in that categories go from lesser complexity and course rigor ("Remember") to greater complexity and rigor ("Create"). While any category of the taxonomy can be used in any level of course, **a higher level course (such as a UC transfer course, numbered 200-299) should include learning outcomes associated with analysis, evaluation and creation implying transfer-level rigor.**

When creating SLOs we want to avoid using words like "understand" or "comprehend" because these are not observable or measurable action words. Instead, we want to use the specific *action words* associated with that domain that *demonstrate* "understanding". The action words chosen depend on what it is the SLO developer wants the students to "understand" or "comprehend". For example, instead of "Understand Salsa Suelta and Rueda dances" one could say "*Identify and describe* key identifying characteristics of Salsa Suelta and Rueda dances". By replacing "understand" or "comprehend" with an action – "identify and describe characteristics" students will be able to demonstrate understanding or comprehension in a measurable way, making it possible for the instructor to assess this SLO.

The term "competence" is different from "understand" in that it is a value judgment, and raises the question of how competence is defined and measured. Instead of leaving it for each instructor to define for him or herself, resulting in unreliable assessments, the SLO developer needs to consider the question: "what demonstrates competence"?

Let us use an example of a Fire Science course objective of developing competence in group facilitation. When creating an SLO for this objective, one would need to determine whether there exists an organizational standard defining competence. For example, Cal Fire might have training regulations related to group facilitation, so instead of saying "competently lead a group discussion" the SLO might be "facilitate a group discussion according to Cal Fire guidelines". Or, there might be common academic standard defined by the textbook or commonly known in the industry ("Facilitate a group discussion using Johnson's Guidelines for Effective Group Facilitation" or "Use Motivational Interviewing skills to facilitate a group discussion"). In the situation where there are no external standards, the SLO developer needs to define these standards of competence, by identifying knowledge, skills and/or attitudes necessary to competently lead a group discussion, and which are being taught in the course (and which should be found in the course "Topics and Scope"). For example: "Facilitate a group discussion effectively by using the skills and attitudes needed to engage and include members, moderate conflicts, and maintain focus on group goals".

SLO Examples based on Bloom's Taxonomy

Remember:

- Identify the functional anatomy and electrochemical processes involved in neurotransmission
- Outline the key parts of a food system
- Recognize the placard and labeling systems according to the Department of Transportation classification system

Understand:

- Describe "form" using vocabulary terms pertaining specifically to 3-D design
- Identify cultural, economic, political, historical contexts that affect children's development
- Explain how cognitive styles and world views affect communication and relationships

Apply:

- Demonstrate skills used to facilitate family engagement and participation in counseling/treatment services and aftercare support
- Trace computer circuits on a typical vehicle to isolate faults
- Solve basic level problems using measurements, formulae, and/or dimensional analysis
- Apply developmental theory to child observations, surveys, and/or interviews using investigative research methodologies

Analyze:

- Analyze historical uses of psychoactive substances and resulting public attitudes, policies, and legislation
- Compare and contrast ASL grammatical and syntactical structure with English or another language
- Classify the types of business transactions as being operating, investing or financing activities

Evaluate:

- Assess a site for potential soil erosion and make recommendations
- Evaluate the anatomical, physiological and behavioral adaptations of animals from an evolutionary perspective.
- Interpret a Hertzsprung-Russell Diagram to classify stars by temperature, luminosity, and stage of evolution

Create:

- Synthesize geologic and seismologic knowledge to organize and integrate the appropriate information to design specific preparedness plans for different earthquake scenarios in their local community in terms of infrastructure issues and immediate hazards awareness.
- Develop and write a therapeutic diet based on problems imposed by common acute and chronic diseases and illnesses
- Create a treatment plan for a person with co-occurring disorders using appropriate diagnostic criteria and evidence-based approaches to achieving desired outcomes

Designing SLOs for Assessability

When reporting achievement of SLOs, you will need tangible, self-explanatory evidence for your "Assessment Results", indicating exactly the degree to which students were able to demonstrate their knowledge and abilities, as related to each SLO. In order to gather that type of measurable evidence, you will need assessment methods that demonstate, in measurable ways, students' competence related to the learning outcome.

Assessment methods should be clearly implied by the SLO. A properly worded SLO will contain clear indications of how to assess the SLO by using measurable action words, as discussed above. Following are examples of SLOs that are not clearly measurable, with suggestions on how they can be re-worded to be assessable

Course: Statistics
Original SLO: Upon completing the course, a student will be able to demonstrate the basic concepts of hypothesis testing.

Comments: This is ambiguous. *How* would students be expected to *demonstrate concepts*? Would they be *identifying, defining, or explaining* the concepts? Or would they be *demonstrating particular skills or practices* that are based on certain concepts? How would either of these be assessed? A better SLO might be, "a student will be able to identify the steps for hypothesis testing" or "a student will be able to apply the steps of hypothesis testing to test claims using real--world data."

Course: Spanish
Original SLO: Upon completing the course, a student will be able to develop grammar skills.
Comments: This offers no clear indication of what kind of assessment would be used. How would we assess *development of skills*? More specifically, "a student will be able to demonstrate grammar skills by writing and correcting sentences." It would be even more to the point to identify the specific grammar skills students are expected to learn and apply, such as "appropriately use the subjunctive in common expressions".

Course: Webpage Design
Original SLO: Upon completing the course, a student will be able to understand how to make a professional website.
Comments: How do we gauge "understanding"? Is this to be measured by a demonstration of knowledge or skills, or both? Most likely, we want the student to actually design and create a website. In Bloom's Taxonomy we find "design" under Analyze and "produce" under Application. So, perhaps "the student will be able to design and produce a professional website compliant with such-and-such standards." With this language, it is clear how we would assess the SLO: Students would design and create websites, most likely as term projects, and would be graded based on their achievement of the predetermined standards.

Course: Science
Original SLO: Upon completing the course, a student will be able to understand various terms used in the field.
Comments: We might gauge "understanding" by the degree to which students are be able to use the terms correctly. A better SLO might be, "a student will be able to define and accurately apply various terms used in the field."

Assignments versus Assessments

Note that an "assignment" is not an "assessment method". *Assignments* may include reading, writing, observation or practice; an *assessment* is a quiz, test or some other form of examination that measures students' competencies.

Reliability and Validity

Assessment tools should be both reliable and valid. **Reliability** is the degree to which an assessment tool produces stable and consistent results. It is the ability of the tool to produce consistent outcomes or measurements over numerous applications (test-retest reliability) and with numerous groups of students, regardless of demographics (age, gender, race, income, etc.). A simple ruler is an example of a highly reliable measurement tool. You can use a ruler to measure 6 inches of metal, 6 inches of wood, or 6 inches of paper

and the pieces will all be the same length if you stack them up against each other. Assessment questions must be written with sufficient clarity and specificity so that the results will be similar if given to the same group of students at different times, or when given to different groups of students.

Ambiguity is the enemy of reliability. For example, if you were to ask "which is the largest tree?" results will differ based on the student's interpretation of "large" (the tallest tree? Or the one with the greatest volume?).

A question is considered to have *inter-rater reliability* if the assessment scores are similar for different raters. This is an important consideration when creating essay-type questions. Will all faculty using the exam undersand the question in the same way, and have similar expectations for student responses?

Validity asks the question: how do you know that you are measuring what you say you are measuring? For instance, our ruler may reliably measure 6 inches, but how do we know that the inches being measured are actually the correct length for the unit we know as an "inch." We establish that by comparing our ruler to a known quantity, such as another ruler that has been calibrated by the National Institute of Standards and Technology (NIST). If the inches are equal, then we can assume that our ruler is valid because we know that the NIST ruler is valid.

Assessments have face validity, a type of content validity, if the questions are appropriate for the topic, as determined by the faculty subject matter expert. Construct validity is established when an assessment is composed to assess what is intended to be assessed by avoiding barriers to answering the intended question. For example, a math exam that uses complex grammatical phrases may require a certain level of English proficiency in order to answer the question. In effect, the question is assessing the student's English language skills as much as their knowledge of mathematics. Construct validity barriers can include the use of colloquialisms, slang, abbreviations (texting-speak), outdated terms or references, etc.

Assessment Methods

Objective and Subjective Assessments

Objective Assessments are ones using true/false, multiple choice, or sentence completion questions that can be easily evaluated; typically responses are either right or wrong. If you embed objective questions in an exam, the use of a scantron and scantron report can quickly and accurately tell you how many students marked the correct answer for a specific question. *Please keep in mind, though, that if the exam addresses multiple SLOs, you can't use the entire exam score as evidence of the achievement of a specific SLO, only those questions linked to the specific SLO's*. An easy way to do this would be to cluster questions within the exam that relate to specific SLO's, or develop a quiz that only relates to one of the SLO's. This is a very easy way to keep track of the quatifiable data.

Subjective Assessments are written assignments (essays, reports, journals, etc.), portfolios or skills demonstrations, where there is a complexity of response that goes beyond simple "right" or "wrong" evaluations, and which require you to use some form of rating scale. Too often this is based on unwritten expectations, which may involve some degree of subjectivity. A more objective and defensible method of assessment of such assignments is through the use of *rubrics*.

A rubric is a scoring guide composed of endpoints you're looking for, along with guidelines for evaluating each of those items. A rubric is "a document that articulates the expectations for an assignment by listing the criteria, or what counts, and describing levels of quality from excellent to poor."[2] Rubrics allow for "standardized evaluation according to specified criteria, making grading and ranking simpler and more transparent in a reliable, fair, and valid manner at several levels."[3] Rubrics can be used for formative as well as summative evaluations. **Students who receive rubrics before completing assignments are more likely to understand and fulfill their instructor's expectations.**[4]

If your assessment method asks for lab reports, oral presentations, research papers, skills demonstrations or other complex presentations, then a rubric will make your life a lot easier. Rubistar is a US Department of Education-funded website designed for teachers that can help you design rubrics. Rubrics come in many different styles; please see Appendices for examples.

Sources for Rubrics:

- Rubistar: http://rubistar.4teachers.org/index.php?screen=WhatIs.
- Rubric Samples for Higher Education: https://rubrics.kon.org/rubric-content-analysis-evaluation.html.
- Brown University: Grading Criteria and Rubrics: https://www.brown.edu/about/administration/sheridan-center/teaching-learning/assessing-student-learning/grading-criteria-rubrics.

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[2] Rubistar: http://rubistar.4teachers.org/index.php?screen=WhatIs
[3] Rubric Samples for Higher Education: https://rubrics.kon.org/
[4] Should You Be Using Rubrics? Faculty Focus, Magna Publications. 2-14-13. http://www.facultyfocus.com/articles/teaching-and-learning/should-you-be-using-rubrics/.

- North Virginia Community College: Methods of Assessing Student Learning Outcomes
  https://www.nvcc.edu/assessment/_docs/PS4.methodsforassessingSLOs1009.pdf
- https://en.islcollective.com/resources/printables/worksheets_doc_docx/oral_presentation_rubric/rubrics-upperintermediate-b2/48396
- http://www.professays.com/wp-content/uploads/2009/12/Research_Paper_Rubric-free-sample.jpg
- http://image.slidesharecdn.com/laboratoryreportrubric-100207192718-phpapp02/95/laboratory-report-rubric-1-728.jpg?cb=1265579894

Course-Level SLOs Assessment Procedure

When assessing the students' overall, course-level achievement of SLOs, you will need to follow the directions found on the SLO Home portal page, as copied below.More detailed explanations of each of the steps follow.

Commonly, when a particular class comes up for assessment, the department will assess all sections of that particular class. In this case, the department would identify a full-time faculty member to coordinate the assessment; and this person would contact all instructors teaching a section of that class, coordinate the assessment, gather the data from each instructor, and report the results to the SLO Team, and record the results in Program Review in CurricUNET.

Part-time faculty are eligible for a $100 stipend for each course assessed, when that course is scheduled by the college for assessment. See the Master SLO Assessment Schedule for courses identified for assessment in a given year. When you email a copy to the SLOT chair, you will receive a response with more information about the stipend.

Recording Assessment Results:

This is where we report our quantifiable data (numbers!). In the Assessment Form, you will see columns both for the raw data, as well as for the Achievment Rating. What is the difference? The raw data might include the average score on an exam question that relates to an SLO. The Achievment Rating is a value that helps to normalize results throughout the college to be used for Program-level learning outcomes (PSLOs), as well as Institution-level learning outcomes (ISLOs). It is up to you to decide your individual cutoff for the Achievment Rating value. Assessment results provide you important and useful oblective information about how well your class, as a whole, has met course objectives via demonstrated outcomes. By recording SLO assessment results you can effectively communicate student success to the public. Assessment results and achievement ratings are necessary to demonstrate compliance with accreditation standards.

A Quick Guide to Assessing Course-level SLOs
Click on hyperlinks for more detailed information, documents and forms. A sample Assessment can be found in the Appendices.

1. Use the "course-level SLO assessment form". After you open this document save a copy to your local hard drive before entering information into the form.
2. In the first column ("Student Learning Outcome"), enter – in separate rows – each specific SLO for the course being assessed. You should assess all of the specific SLOs assigned to the course as indicated in the Course Outline of Record. SLOs can also be found on the SLO page of the college public website.

3. In the second column ("Assessment Method"), enter the type of assessment (exam, quiz, project, etc.) used to assess student learning; specifically, as the assessment relates to achieving the identified learning outcome. If specific questions related to the SLO were embedded in an exam, indicate this by writing something to the effect "several questions related to this SLO were embedded in the midterm exam". If an assessment was entirely or largely devoted to this SLO, indicate this by writing something to the effect "a quiz focusing on this SLO"
4. In the third column ("Assessment Results"), provide specific quantitative data or conclusion taken from your assessment method. If you embedded several questions in an exam, you would indicate the % of correct responses you received for these specific questions (not for the exam as a whole), and then indicate what these results mean to you.
5. In the fourth column ("Achievement Rating") choose the number in the rubric above the table that best represents your determination of your class's achievement of the SLO.
6. In the final column ("Intended Use of Results"), write what you intend to do given the assessment results. If students achieved the SLO at an acceptable level, then your response may simply be "continue with current practice". However, you may find that the assessment method needs revised, or more instructional emphasis may need to be placed on this SLO, etc. This is also an opportunity to identify the need for additional resources (equipment, A/V resources, etc.) or funds for professional development.
7. Once you've completed the form, save it to your hard drive and then email a copy to the SLOT Chair; part-time faculty should email a copy to the lead professor in the discipline as well.

If you have questions or would like assistance, please contact one of the SLOT members.

Achievment Rating	Value
SLO needs rewritten, replaced or deleted	0
Largely Unmet - Unmet	1
Minimally Met – Needs Improvement	2
Largely Met	3
Entirely Met	4

Intended Use of Results:

The data presented in Assessment Results can provide a lot of great feedback to you, as well as your program, and the college as a whole. If you find that the SLO is not being met, you are presented with an opportunity to make adjustments than can lead to improved outcomes. Perhaps a modified pedagogical approach is needed. Perhaps the SLO needs to be re-written, replaced or deleted. Perhaps there is evidence for professional development needs. Assessment results can provide evidence supporting the need for new instructional resources (videos, reference materials, charts, models), equipment, supplies or facilities – even staffing! When completing the annual Program Review, requests for such resources are supported with SLO assessment results.

Modifying Existing SLOs

Faculty are subject matter experts in their disciplines, and have the authority and responsibility to ensure that SLOs in area courses are written in a manner that incorporates the key course objectives and have clearly measurable outcomes. Revising course-level SLOs is a straightforward process, but does require submitting a

course modification through the curriculum process. SLO modifications are submitted on the curriculum committee agenda as "information items", meaning you will not have to be present at the meeting in order to have these approved. At the time of this writing, Mendocino College is changing its curriculum management system, so faculty will need to contact a Curriculum Committee member, or one of the members of the SLOT committee for assistance with this process. SLOT committee member contact information can be found on the college portal at the SLO Home page as well as in the Appendices to this document.

Program Definition

According to the California Community College Chancellor's Office Program and Course Approval Handbook (PCAH), 5th edition:

> An **educational program** is defined in Title 5, section 55000(g), as "an organized sequence of courses leading to a defined objective, a degree, a certificate, a diploma, a license, or transfer to another institution of higher education." In practice, however, the Chancellor's Office approves only associate degrees and those credit certificates that community colleges wish to award to students and which will be listed on transcripts. Respectively, all noncredit programs require Chancellor's Office approval.
> The types of educational programs that must be submitted to the Chancellor's Office for approval are the following:

Credit Programs
- Associate Degrees – traditional A.A. or A.S. and A.A.-T/A.S.-T
- Certificates of Achievement that require 18 or more semester units (or 27 or more quarter units)
- Certificates of Achievement that require 12 to fewer than 18 or more semester units (or 18 to fewer than 27 quarter units)

Noncredit Programs
All noncredit programs that receive state funding must be submitted to the Chancellor's Office for approval. These include course sequences in Career Development and College Preparation (CDCP) that lead to:
- Certificates of Competency – in a recognized career field articulated with degree-applicable coursework, completion of an associate degree, or transfer to a baccalaureate institution
- Certificates of Completion – leading to improved employability or job opportunities
- Adult High School Diploma

Program-level Student Learning Outcomes (PSLOs) generally represent attainment of all the essential course-level SLOs of required major courses, and provide a concise description of a graduate's abilities with respect to a specified industry or industry cluster. PSLOs describe what a graduate will be able to do after successfully completing the program.

Examples of Mendocino College educational programs include:

- Automotive Technology Associate of Science Degree
- Business Administration for Transfer Degree
- Business – Real Estate Certificate of Achievement
- English for Transfer Degree
- Human Services Associate of Science degree and Certificate of Achievement
- Mathematics for Transfer Degree
- Theatre Arts Associate of Arts Degree

Current PSLOs are listed in the college catalog with each degree/program, and can be found in both CurricUNET and the Mendocino College public website.

Writing PSLOs

When creating a new program, one should with the Curriculum Committee chair and associated academic administrators to identify the administrative requirements for program development. That information is beyond the scope of this SLO Handbook; the focus here is on creating Program-level Student Learning Outcomes for proposed programs. To begin with the development of PSLOs, complete the following steps:

Step 1
Start by forming a group consisting of full- and part-time faculty and representative(s) of the industry related to the program. This group will review the course-level SLOs for all courses required to complete the program (this includes "restricted elective" courses, or courses from the "pick list" of additional required courses) in order to identify for themes, or SLOs that are similar in multiple courses. These will help define what an ideal graduate would know, understand, and be able to do after completing your program.

One way to do this is to create a list of all course-level SLOs and to "cluster" those that have common features. In a group setting, this can be done by listing all individual SLOs on a white board or chart paper and then numbering or identifying common SLOs with colored stickers.

As part of this process your group should research professional organizations in your discipline – many of them are developing Student Learning Outcomes for programs at various levels. Some Career Technical Education programs have these outcomes defined for them by accrediting boards; just make sure these are true "student learning outcomes" and not just program objectives, as described above. This discussion is an ideal function of college program advisory committees.

Example:

In a cursory review of the courses required for a degree in History, the following SLOs from different courses have a thematic relationship:

- Evaluate the first presidents and early American political parties.
- Describe the causes and consequences of the Cold War.
- Explain the importance of the development of the Catholic Church and the rise of monarchies in Europe.
- Identify crucial events which and people who shaped the development of Modern Europe and the contemporary world.
- Identify and Describe events and people of historical importance.

These SLOs require that students identify and describe historically significant events. Consequently, an appropriate program-level learning outcome would be "Identify and describe historically important people, events, problems, and periods."

Step 2
"Map" the course SLOs with the PSLOs. "Mapping", or linking course-level SLOs to PSLOs, should be a

consensus process among discipline faculty. By mapping SLOs with PSLOs, you can demonstrate each course's relevance to the program, and demonstrate how the SLOs contribute to the achievement of the program's goals for students. As a result of this process, you may find a course's SLOs have little relevance to the PSLOs, which may suggest a need to either modify or delete the course or create/revise the PSLO(s). You may also find that certain PSLOs are overrepresented or underrepresented by course SLOs, which would suggest a need to reevaluate your emphases through further course SLO or PSLO modifications.

A mapping spreadsheet for this purpose will be provided by the Student Learning Outcomes Team, upon request.

Step 3

Agree on a first draft of a list of PSLOs (between 3 and 6 would be ideal). Submit these as part of the new program proposal/program modification for approval by the Curriculum Committee, and be prepared to explain how these PSLOs provide the best picture of what students will be able to do upon successful completion of the program.

Step 4
Be prepared to review and revise the PSLOs over time, for various reasons, including:

- Your assessment of the PSLOs reveal that they are not measuring what you had hoped for, or that one or more may not fully represent the intended program outcomes
- Program modifications (adding or deleting courses; significant revisions to courses) may necessitate modified PSLOs
- Changes in the profession or discipline with which the program is associated

A spreadsheet for this purpose will be provided by the Student Learning Outcomes Team, and will be located on the Portal.

Start by reviewing the course SLOs to PSLOs mapping to ensure that any new course SLOs are represented in the mapping document. Notify the SLO Team if you make any changes to the mapping worksheet, since this will affect the alignment of SLO assessments to PSLOs (Figure 2).

Figure 2: PSLO Mapping Worksheet

If the mapping is correct, refer to the next worksheet (select tab at the bottom of the spreadsheet); here you will find the individual course SLO assessment results aggregated by PSLO. Consider the assessment outcomes of all courses associated with the first PSLO. What do these tell you about the degree to which students achieved this PSLO? Write you assessment of this PSLO in the column provided, and do this with each of the PSLOs (Figure 3).

	PSLO #	Course ID	Course SLO	Course SLO Assessment	PSLO Assessment
16					
17					
18	1	100	Students will be able to demonstrate the ability to analyze a situation and determine what kinds of plant problems exist.	Most students were successful in this SLO, although the depth ofknowledge, understanding and the ability to draw a proper conclusion could be strengthened in 50% of the students	Write your analysis of how well you believe this PSLO (#1) was achieved based on your consideration of the collective "Course SLO Assessment" data provided to the left
19		108	Interpret and apply lab recommendations.	Class Average for Assessment: 93%	
20			Analyze common nutrient deficiencies/excesses in local crops and greenhouse situations.	Class Average for Assessment: 82%	
21		142	Describe the proper fertilization of lawns, trees and shrubs.	100% of the students were successful at demonstrating the proper fertilization techniques. Only 70 % of these same students were competent at the calculating the correct rates of different formulations of fertilizers to use on various sites.	
22			Describe the basic pruning of fruit trees and ornamental plants.	85% to 95% of the students successfully answered these questions depending on if it was the quiz or midterm or final.	
		154	Students will discuss the order of	The vast majority of the class had reached	

‹ › …   AGR-Landscape Cert   **AGR LS-Cert PSLO Assess**   AGR Nursery Cert   AGR Nrs-Cert PSLO Assess   AGR Small Farms Cert

Figure 3: PSLO Assessment Worksheet

Every program will be assessed as part of the 6-year Program Review/Curriculum/SLO Assessment cycle.

Service Area Outcomes, or SAOs, describe what students will experience, receive, or know with respect to a given service. SAOs at Mendocino College are based on the *standards* established by the Accrediting Commission for Community and Junior Colleges (ACCJC).

> ACCSC's Standards of Accreditation provides an accountability framework for institutions that first and foremost seeks to ensure that institutions offer well developed programs that prepare students for their chosen fields of work, and second, requires institutions to assess continually and show success in meeting established program objectives.[5]

SAO and PSLO assessments are the method by which the college ensures that we adequately "prepare students for their chosen fields of work" and provide the means to "show success in meeting established program objectives".

SAOs are *student-centric* outcomes as opposed to department or service area *goals*. Goals and objectives should be created based on how their achievement will impact students, but too often they are based on what we think we need to do versus our understanding or consideration of what the best outcomes should be for students.

For example, a *goal* of the Financial Aid Department would describe what the department believes needs to be done to distribute aid to students. This may be "Financial Aid will increase messaging about federal financial aid". This is what staff intend *to do*. A student-centric *outcome* related to this goal would be "Eligible students in all locations and participating in all course delivery modes are aware of available financial aid". Not only is this student-centric, but it is written in such a way that allows for an assessment of the true impact on students. Even if we can determine that the goal of "increased messaging about federal financial aid" is met, we do not necessarily know whether the implied outcome (students' awareness of available financial aid) is achieved without assessing the *outcome*.

Therefore, an SAO will include, along with the intended outcomes, methods of assessing these outcomes. Focusing on the outcomes, achievement can be assessed by such methods as counting the number of students attending orientations in which FA information is provided; the number of hits on the FA website; the number of students successfully accessing FA information, student surveys, etc.

One of the standards related to Student Services (section II.C.3) states that "The institution assures equitable access to all of its students by providing appropriate, comprehensive, and reliable services to students regardless of service location or delivery method."

If we were to consider this standard in the development of an SAO for the Financial Aid service area, the SAO would be "Eligible students in all locations and participating in all course delivery modes are aware of available financial aid". This is an assessable, student-centric outcome that is based on an accreditation standard for this area.

Service Area Outcomes can be found on the Mendocino College portal.

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[5] http://www.accsc.org/Accreditation/Standards-of-Accreditation.aspx; accessed 10/13/16

Appendices

Accessing SLO Information and Forms

Document/Information	Location	URL
Active SLOs (course/program)	CurricUNET	www.curricunet.com/mendocino
	Public website	www.mendocino.edu/academics/student-learning-outcomes
SLO Assessment Schedule	Portal	https://portal.mendocino.edu/TeamSites/SLO/Public%20Documents/SLO%20ASSESSMENT%20INFORMATION/Assessment%20Schedules/Master%20SLO%20Assessment%20Schedule.xls
Completed course SLO assessments	Portal	https://portal.mendocino.edu/TeamSites/SLO/Public%20Documents/Forms/AllItems.aspx?RootFolder=%2fTeamSites%2fSLO%2fPublic%20Documents%2fSLO%20ASSESSMENT%20INFORMATION%2fCOMPLETED%20COURSE%20SLO%20ASSESSMENTS%20BY%20DISCIPLINE&FolderCTID=&View=%7b40003547%2d0268%2d441B%2d9663%2d883AA8F50F3B%7d
Guidelines and Directions	Portal	

CurricUNET:

To find course-level SLOs:

Go to www.curricunet.com/mendocino; under "Search" click on "course" (you do not have to enter your credentials to access this information). On the next page, click on "All" and choose your program/discipline from the drop-down menu. If you know the course number, enter that information now before hitting "OK".

On the next page you will see a list of all active, **approved** (for future semester) and inactive courses.

If you are planning a syllabus for a fall semester course, check the "approved" version to see if this is a revised course outline that will be active during the upcoming semester; otherwise, choose the "active" course to view the SLOs. If you are only interested in viewing the SLOs and not the full course outline, click on the SLO icon on the left.

```
 ⑨ 𝒮₀  ART 206 Introduction to Native
         American Art *Inactive* **Modified
         Course Proposal**
         Rebecca Montes
 ⑨ 𝒮₀  ART 206 Introduction to Native
         American Art *Inactive* **Course
         Correction – Administrative
         Revision**
         Paul Jones
 ⑨ 𝒮₀  ART 206 Introduction to Native
         American Art *Inactive* *New
         Course Proposal**
         Frank Tuttle
 ⑨ 𝒮₀  ART 207 Survey of Western Art from
         Prehistory through the Middle Ages
         *Active* Lisa Rosenstreich
 ⑨ 𝒮₀  ART 208 Survey of Western Art from
         the Renaissance to the Contemporary
         Period. *Active* Lisa Rosenstreich
     𝒮₀  ART 209 Art Appreciation *Approved*
         **New Course Proposal**
         Mina Cohen
 ⑨ 𝒮₀  ART 210 Drawing *Inactive*
         **Modified Course Proposal**
         Paula Gray
 ⑨ 𝒮₀  ART 210 Drawing *Inactive* **Course
         Inactivation**
         Mary Lamb
```

On the SLO page, look for the "Effective Date" in the upper right side of the document:

Mendocino College
SLO Report

CC Approval: 13-May-16
Effective Term: Fall 2017

Course Number: ART 209
Course Title: Art Appreciation
Initiator: Mina Cohen

Min Units: 3.00   **Max Units:** 3.00

Student Learning Outcomes
Upon satisfactory completion of Art Appreciation, students will be able to:

1. Evaluate and critique works of art and architecture based on media, formal elements, and principles of design using appropriate art historical terminology.
2. Apply different methods of art historical analysis, including formal, feminist, multicultural, and iconographic.
3. Identify, analyze, and discuss the functions of art and the roles of artists in diverse cultures.

Originator: Mina Cohen   **Date:** 02/25/2016

If you are teaching ART 209 in Fall 2017, you would be using these "approved" SLOs to develop your course assessments. If you are teaching ART 209 in Spring 2017, you would be using the "active" SLOs.

Public Website
Go to www.mendocino.edu/academics/student-learning-outcomes. Here you will find Institution-level; Program-level; and course-level SLOs. You will notice that links for specific course and program SLOs link back to CurricUNET, but you want to go directly to CurricUNET to check for "approved" SLOs for an upcoming fall semester.

Portal

Go to https://portal.mendocino.edu/staff/Pages/default.aspx. After you login to the portal, choose the drop-down menu for "Faculty and Staff" and click on "SLO Home".

On the page that opens, you will find links in the center column for completed assessments, assessment schedules, forms, etc.

Tips for Writing Good Multiple‑‑‑Choice Questions

General Tips

- Keep each item as concise as possible. Short, straightforward items are usually easier to understand than complex statements.
- Avoid irrelevant materials, digressions, and qualifying information unless you are specifically assessing the skill of identifying needed information.
- Don't repeat the same words over and over in the options; put them in the stem.
- Define all terms carefully. If you ask, "Which of the following birds is largest?" make clear whether you mean largest in terms of wingspan or weight.
  - What do you mean by "sometimes," "usually," or "regularly"?
- Don't make the vocabulary unnecessarily difficult. Except for terms you are specifically assessing, keep the vocabulary simple‑‑‑perhaps high school level. Otherwise you may unfairly penalize students who know the materials but don't have a strong general vocabulary.
- Watch out for "interlocking" items: items in which a student can discern the answer to one question from the content of another. Review carefully all items that share similar options.
- In a similar vein, don't ask students to use their answer to one question to answer another. If they get the first question wrong, they will automatically get the other question wrong as well, even if they understand the concept tested in the second question.

Writing a Good Stem

- The stem should ask a complete question. The student shouldn't have to read the options to discern the question. To check this, ask yourself if students would be able to answer the question posed in the stem correctly if no options were provided.
- Avoid "Which of the following" items. They require students to read every option and can penalize slow readers in a timed‑‑‑testing situation.
- Don't ask questions that can be answered from common knowledge. Someone who hasn't studied the material shouldn't be able to answer the questions correctly.
- Avoid negative items. In a stressful testing situation, students can miss the word not or no. If you must have negative items, underline, capitalize or boldface words like NOT or EXCEPT.
- Avoid grammatical clues to the correct answer. Test‑‑‑wise students know that grammatically
- Incorrect options are wrong. Use expressions like "a/an," "is/are," Or "cause(s)".

Writing Good Options

- You needn't have the same number of options for every question. Four options are fine. A good fifth option is often hard to come up with, takes extra reading time, and reduces the chances of guessing the correct answer only from 25 to 20 percent. Some questions may have only three plausible options (for example, "Increases," "Decreases," and "Remains Unchanged").
- Order responses logically. Order responses numerically if they are numbers and alphabetically if they are single words. This helps students who know the answer find it quickly. If the options have no intuitive order, insert the correct answer into the responses randomly.
- Line up responses vertically rather than horizontally. It's much easier‑‑‑and less confusing‑‑‑to scan down a column than across a line to find the correct answer. If you are using a paper test and your options are so short that this seems to waste paper, arrange the test in two columns.

- Make all options roughly the same length. Test---wise students know that they longest option is often the properly qualified, correct one. (For this reason, a relatively long option can make a good distracter!)
- Avoid repeating words between the stem and the correct response. Test---wise students will pick up this clue. (On the other hand, verbal associations between the stem and a distracter can create an effective distracter.)
- Avoid using "None of the above." A student may correctly recognize wrong answers without knowing the right answer. Use this option only when it is important that the student know what not to do.
- If you use "none of these," use it in more than one question, both as a correct answer and an incorrect answer.
- Avoid using "All of the above." This option requires students to read every option, penalizing those in a timed testing situation who know the materials but are slow readers. Students who recognize option A as correct and choose it without reading further are also penalized. "All of the above" also gives full credit for incomplete understanding; some students may recognize options A and B as correct and therefore correctly choose "All of the above" even though they don't recognize option C as correct.

Writing Good Distracters

The best distracters help diagnose where each student went wrong in his or her thinking. Identify each mental task that students need to do to answer a question correctly, and create a distracter for the answer students would arrive at if they completed each step incorrectly.

Use intrinsically true or at least plausible statements. Test---wise students recognize ridiculous statements as wrong. To see if your test has such statements, ask a friend who has never studied the subject to take the test. His or her score should be roughly what would be earned from guessing randomly on every item (25 percent for a four-option multiple-choice test).

Name:_____

Research Paper Rubric

	4	3	2	1
Content and Focus	▪ Exceptionally clear, focused, interesting thesis. ▪ Strong, rich supporting details and examples that prove thesis. ▪ A meaningful conclusion explaining the importance of the research and how it can be used.	▪ Clear thesis which maintains a consistent focus from beginning to end. ▪ Specific supporting details are present. ▪ A clear conclusion as to why the research is important.	▪ Contains thesis but with inconsistent focus. ▪ Generalized supporting details that prove thesis. ▪ Conclusion tends to summarize research.	▪ Thesis statement lacks clarity and focus. ▪ Inadequate or missing supporting details. ▪ Missing a summarizing conclusion
Organization	▪ Strong introduction and conclusion. ▪ Consistent and coherent logical progression. ▪ Uses clear and skillful transitions.	▪ Clear introduction and conclusion. ▪ Illustrates some consistency and shows some logical progression. ▪ Uses clear transitions.	▪ Introduction and conclusion is present but not clear ▪ Show some attempt of consistency and order. Paper shows attempt of transitions between paragraphs.	▪ Unable to clearly identify introduction and conclusion. ▪ Lack of consistency and order. ▪ Paper shows little or no attempt of transitions between paragraphs.
Style	▪ Written in formal language (avoids slang completely). ▪ Elaborate and colorful language. ▪ Consistently strong and varied sentence structure. ▪ Direct quotes support student's ideas. ▪ Paper written in student's own words.	▪ Majority of paper written in formal language. ▪ Language appropriate to topic. ▪ Words convey intended message. ▪ Direct quotes support student's ideas. ▪ Majority of paper written in student's own words.	▪ Some use of formal language recognized; informal language is dominant. ▪ Most language is appropriate to topic. ▪ Able to get vague idea of message. ▪ Some parts of paper written in student's own words.	▪ Paper frequently uses informal language. ▪ Language is not appropriate to topic. ▪ Message is unclear. ▪ Majority of paper is plagiarized.
Sources/Format	Follows MLA guidelines: ▪ Uses 5 or more cited sources. ▪ Sources meet the guidelines for types of sources. ▪ All parenthetical documentation is MLA correct (author's name, pg. #). ▪ Works Cited page is MLA correct. ▪ All researched info is documented.	Follows MLA Guidelines with few exceptions: ▪ 3-4 cited sources used. ▪ Sources meet the guidelines for types of sources. ▪ Few errors noted in parenthetical documentation ▪ Majority of Works Cited page is MLA correct. ▪ Most research info is Documented.	▪ Inconsistent use of MLA style guidelines. ▪ Less than 3 cited sources used. ▪ Majority of parenthetical documentation done incorrectly. ▪ Random MLA documentation. ▪ Rarely documents sources.	▪ Fails to follow MLA style Guidelines. ▪ Less than 3 cited sources used little or no parenthetical documentation. ▪ Works Cited page is not understandable.
Conventions	Superior editing. Rarely makes errors in the following areas: ▪ Spelling and mechanics. ▪ Correct usage and grammar.	Careful editing. Makes few errors in the following areas: ▪ Spelling and mechanics ▪ Correct usage and grammar	Some evidence of editing: ▪ Extensive spelling and grammatical errors.	Poor editing: ▪ Spelling and grammatical errors make it difficult to read paper.

Score:_____ / 4

Evaluated by:_____   Date:_____

Oral Presentation Rubric: Intermediate/Advanced ESL

1=Below Average 2=Satisfactory 3=Above Average 4= Excellent

CATEGORY	4	3	2	1
Originality	The presenter sustained the interest of the audience in clever and innovative ways and achieved the purpose of the presentation.	The presenter kept the attention of the audience the whole time and the purpose of the presentation was achieved.	The presenter was somewhat enthusiastic and kept the audience's attention for the most part. The purpose of the presentation was mainly achieved.	The presenter was un-enthusiastic; the audience's attention showed disinterest and the purpose for the presentation was not achieved.
Structure	The introduction and actual presentation were exceptionally well- organized and easy to understand.	Presenter gave a clear and concise introduction of the topic. The flow of the presentation was clear and concise and easy to follow.	Presenter gave a clear introduction of the topic, but the presentation was somewhat unclear. For the most part it was somewhat confusing to follow.	Presenter did not give a clear and concise introduction of the topic. The flow of the presentation was unclear and confusing to follow.
Language Usage (grammar and syntax)	Presenter used the BEST sentence structure/syntax that supported the topic. Franglicismes/slang/r eductions were NEVER used.	Presenter used correct sentence structure/syntax that was appropriate in supporting the topic. No franglicisimes/slang/red uctions were used.	Presenter used correct sentence structure/syntax that was mostly appropriate for the topic. A few (1-5) franglicisimes/slang/reducti ons were used.	Presenter used incorrect sentence structure/syntax that was not appropriate for the topic. Franglicismes/slang/r eductions were very often (6+ times) used.
Vocabulary	Uses the BEST vocabulary for the audience. Defines words that might be new to most of the audience.	Uses vocabulary appropriate for the audience. Includes 1-2 words that might be new to most of the audience, but does not define them.	Uses vocabulary appropriate for the audience. Does not include any vocabulary that might be new to the audience.	Uses several (5 or more) words or phrases that are inappropriate and not understood by the audience.
Pronunciati on + Enunciation	Speaks clearly and distinctly all (100-95%) the time, and mispronounces no words.	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces 2-5 words in the presentation.	Frequently mumbles OR mispronounces several (6+) key words in the presentation.
Delivery	The presenter is VERY WELL prepared and delivers ideas in a clear and concise manner, without depending too much on notes. Volume, pacing and gestures contribute maximally to the presentation.	Presenter was well prepared and delivered ideas with lots of eye contact. Appropriate voice volume, tone and pacing. Gestures supported the overall presentation.	Presenter was somewhat prepared. Delivery of the presentation was made but with strong dependence on notes and hesitation. Some eye contact and good voice volume, tone and pacing. Some appropriate gestures that supported the presentation.	Presenter was clearly unprepared to present to the audience. Marked lack of eye contact, poor voice volume, tone and pacing. Inappropriate gestures which detracted from the presentation.

Laboratory Report

Ms. Polson

Student:_____   Date: _____   Period: _____

Category	4 Exceeds Standards	3 Meets Standards with Strength	2 Meets Standards	1 Does Not Meet Standards
Context	Title clarifies purpose of investigation; uses appropriate scientific vocabulary, cites legitimate sources; MLA format	Title gives description of investigation; includes vocabulary but has difficulty putting into context; cites sources for information; MLA format	Title vaguely describes lab; missing essential vocabulary within introduction; cites sources but lacks MLA format	Title does not relate to lab; uses incorrect vocabulary that is inappropriate; does not cite sources
Formulating Hypothesis	Shows clear understanding of the problem	Shows thoughtful approach to problem	Statement is not clear	Statement is not logical or is irrelevant
Experimental Design	Distinguishes independent, dependant and controlled variables; methods contain appropriate detail to repeat experiment; clarifies essential instruments and how measurements were made	Distinguishes independent, dependent, and controlled variables; Methods contain too much/little detail; identifies tools used and types of measurements made	Dependent variable is clearly distinguished, independent and controls may be confused; a setoff steps is included in place of methods; has difficulty understanding the type of measurements made	Independent, dependent, and control variables can not be accurately distinguished or identified; no understanding of methods given
Experimental Error	Analyzes various sources of error as seen in the data and suggests logical revision	Analyzes sources of errors as seen in the data, but suggested revisions lack detail or relevance	General sources of error are discussed, but do not clearly arise from the data	Sources of error are not analyzed or discussed
Data Presentation	Chooses appropriate format for organizing and presenting key data/calculations; includes clear titles and labels	Organizes and presents data in appropriate graphic format, may lack titles and labels	Attempts to organize data, but may choose inappropriate format and/or lacks labels and descriptions	Does not present the data in an organized format
Evaluation of Hypothesis	Cites specific data to accept or reject hypothesis	Mentions appropriate data to accept or reject hypothesis	Mentions data to accept or reject hypothesis, but data may be inappropriate or irrelevant	Accepts or rejects hypothesis without reference to data
Context	Thoughtfully connects specific data to discussion of scientific content	Connects general data to discussion of scientific context	Connects data to discussion of scientific context, but may be irrelevant or incorrect	Does not connect data to larger scientific context
Writing	Shows clarity by organizing main ideas and supporting details within paragraph structure; syntax, grammar, tense and spelling are accurate	Shows clear main ideas, lacks supporting details, may lack paragraph structure; syntax, grammar, tense and spelling may contain minor errors	May combine main ideas and details in an indistinguishable way; syntax, grammar, tense and spelling contain numerous errors	Lacks main ideas and/or details; syntax, grammar, tense and spelling contain numerous errors

Points Earned: _____

Comments:

MENDOCINO COLLEGE STUDENT LEARNING OUTCOMES ASSESSMENT

Completer's Name: **Pat Hogen**   Today's Date: 5-25-16   Semester the course was taught: Fall   Year: 2015-2016

Course Number: **BIO 270**   Course Title: **Fictional Biology**   Course Section Number: **1234**   Location: Ukiah
          Type of Course: Face-to-Face

WHICH *INSTITUTIONAL LEARNING OUTCOME(S)* DOES THIS COURSE SUPPORT? (see below): ☐ 1; ☒ 2; ☐ 3; ☐ 4; ☒ 5; ☐ 6

ACHIEVEMENT RUBRIC: 4 = SLO entirely met; 3 = SLO largely met; 2 = Minimally met/needs improvement; 1 = largely unmet/unmet; 0 = SLO needs rewritten or N/A

Student Learning Outcome	Assessment Method (include who, what, when, how)	Assessment Results (include main findings)	Achievement Rating (see rubric)	Intended Use of Results (Will instructor modify instruction and/or assessment?)
1. Diagram a eukaryotic cell.	a. Quiz questions regarding the cell structure b. Cell diagram	a. 83% of the quiz questions regarding cell structure were correct. In particular, students missed questions related to the nucleus. b. All organelles of the cell were included, except the mitochondria.	3	These data support the request for a new cell model. This would aid the students in visualizing the cell. See Program Review for request.
			Choose	
			Choose	
			Choose	
			Choose	
			Choose	
			Choose	

IF YOU HAVE ASSESSED THIS COURSE IN THE PAST* please describe the need for any modification(s) indicated as a result of that assessment (if any). If modifications were indicated, describe whether and how the modification(s) occurred, and the outcomes of the modification(s):
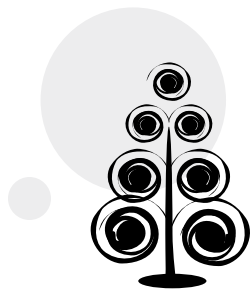
*Completed SLO assessments can be found HERE

This course is new and has not been assessed in past semesters.

2016-17 Student Learning Outcomes Team

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Cyndi Woskow	Administrative Assistant	707-468-3234	cwoskow@mendocino.edu

SLO Terminology Glossary

A Resource for Local Senates

The following glossary was developed from existing research and feedback from faculty and researchers from the California community colleges in response to Resolution S08 2.02 that asked the Academic Senate for California Community College to address the confusion in the field by researching and developing a glossary of common terms for student learning outcomes and assessment. The glossary does not dictate terminology nor does it seek to be comprehensive. Due to the increased collaboration between researchers and faculty, dialog about these terms increases our ability to serve our students and increase student success.
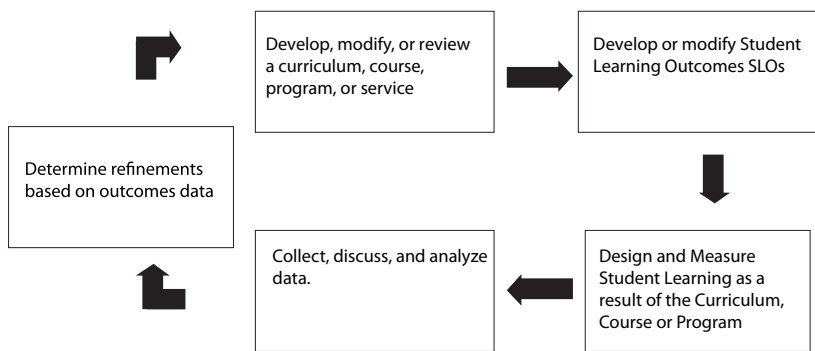
Affective Outcomes. Affective outcomes relate to the development of values, attitudes and behaviors.

Alignment. Alignment is the process of analyzing how explicit criteria line up or build upon one another within a particular learning pathway. When dealing with outcomes and assessment, it is important to determine that course outcomes align or match up with program outcomes; that institutional outcomes align with the college mission and vision. In student services, alignment of services includes things like aligning financial aid deadlines and instructional calendars.

Artifact. An assessment artifact is a student-produced product or performance used as evidence for assessment. An artifact in student services might be a realistic and achievable student educational plan (SEP).

Assessment Cycle. The assessment cycle refers to the process called closing the loop and is figuratively represented below.

Closing the Assessment Loop

Assessment of Learning. Learning assessment refers to a process where methods are used to generate and collect data for evaluation of courses and programs to improve educational quality and student learning. This term refers to any method used to gather evidence and evaluate quality and may include both quantitative and qualitative data in instruction or student services.

Assessment for Accountability. The primary drivers of assessment for accountability are external, such as legislators or the public, and usually entail indirect or secondary data. Application of accountability data for educational improvement requires careful analysis of the alignment of the data and the ramifications of the actions.

Assessment for Placement. Assessment for placement is the process of gathering information about individual students, such as a standardized test or process to determine a student's skill level, in order to place the student in a course sequence, such as math, English, ESL, or reading to facilitate student success. This process involves the validation of the content of the standardized test by the appropriate faculty content experts and analysis of the cut scores to determine the effectiveness of the placement and the development of multiple measures. Title 5 §55502 defines assessment for placement and the requirements for this kind of assessment.[1]

Authentic Assessment. Traditional assessment sometimes relies on indirect or proxy items such as multiple choice questions focusing on content or facts. In contrast, authentic assessment simulates a real world experience

by evaluating the student's ability to apply critical thinking and knowledge or to perform tasks that may approximate those found in the work place or other venues outside of the classroom setting. [2]

Bloom's Taxonomy. Bloom's Taxonomy is an example of one of several classification methodologies used to describe increasing complexity or intellectual sophistication:

1. **Knowledge:** Recalling or remembering information without necessarily understanding it. Includes behaviors such as describing, listing, identifying, and labeling.

2. **Comprehension:** Understanding learned material and includes behaviors such as explaining, discussing, and interpreting.

3. **Application:** The ability to put ideas and concepts to work in solving problems. It includes behaviors such as demonstrating, showing, and making use of information.

4. **Analysis:** Breaking down information into its component parts to see interrelationships and ideas. Related behaviors include differentiating, comparing, and categorizing.

5. **Synthesis:** The ability to put parts together to form something original. It involves using creativity to compose or design something new.

6. **Evaluation:** Judging the value of evidence based on definite criteria. Behaviors related to evaluation include: concluding, criticizing, prioritizing, and recommending.[3] (Bloom, 1956)

Classroom assessment techniques. Classroom assessment techniques (CATs) are "simple tools for collecting data on student learning in order to improve it" (Angelo & Cross, 1993, p. 26).[4] CATs are short, flexible, classroom techniques that provide rapid, informative feedback to improve classroom dynamics by monitoring learning, from the student's perspective, throughout the semester. Data from CATs are evaluated and used to facilitate continuous modifications and improvement in the classroom.

Classroom-based assessment. Classroom-based assessment is the formative and summative evaluation of student learning within a classroom, in contrast to institutional assessment that looks across courses and classrooms at student populations.

Closing the Loop. Closing the loop refers to the use of assessment results to improve student learning through collegial dialog informed by the results of student service or instructional learning outcome assessment. It is part of the continuous cycle of collecting assessment results, evaluating them, using the evaluations to identify actions that will improve student learning, implementing those actions, and then cycling back to collecting assessment results, etc.

Competencies. See Student Learning Outcomes.

Continuous Improvement. Continuous improvement reflects an on-going, cyclical process to identify evidence and implement incremental changes to improve student learning.

Core Competencies. Core competencies are the integration of knowledge, skills, and attitudes in complex ways that require multiple elements of learning which are acquired during a student's course of study at an institution. Statements regarding core competencies speak to the intended results of student learning experiences across courses, programs, and degrees. Core competencies describe critical, measurable life abilities and provide unifying, overarching purpose for a broad spectrum of individual learning experiences. Descriptions of core competencies should include dialog about instructional and student service competencies. See also ***Institutional Learning Outcomes.***

Course Assessment. This assessment evaluates the curriculum as designed, taught, and learned. It involves the collection of data aimed at measuring successful learning in the individual course and improving instruction with the ultimate goal towards improving learning and pedagogical practice.

Criterion-based assessments. Criterion-based assessment evaluates or scores student learning or performance based on explicit criteria developed by student services or instruction which measures proficiency at a specific point in time.

Culture of evidence. The phrase "culture of evidence" refers to an institutional culture that supports and integrates research, data analysis,

evaluation, and planned change as a result of assessment to inform decision-making (Pacheco, 1999)[5]. A culture of evidence is characterized by the generation, analysis and valuing of quantitative and qualitative data in decision making.

Direct data. Direct data provide evidence of student knowledge, skills, or attitudes for the specific domain in question and actually measuring student learning, not perceptions of learning or secondary evidence of learning, such as a degree or certificate. For instance, a math test directly measures a student's proficiency in math. In contrast, an employer's report about student abilities in math or a report on the number of math degrees awarded would be indirect data.

Embedded assessment. Embedded assessment occurs within the regular class or curricular activity. Class assignments linked to student learning outcomes through primary trait analysis serve as grading and assessment instruments (i.e., common test questions, CATs, projects or writing assignments). Specific questions can be embedded on exams in classes across courses, departments, programs, or the institution. Embedded assessment can provide formative information for pedagogical improvement and student learning needs.

Evidence. Evidence is artifacts or objects produced that demonstrate and support conclusions, including data, portfolios showing growth, as opposed to intuition, belief, or anecdotes. "Good evidence, then, is obviously related to the questions the college has investigated and it can be replicated, making

it reliable. Good evidence is representative of what is, not just an isolated case, and it is information upon which an institution can take action to improve. It is, in short, relevant, verifiable, representative, and actionable."[6]

Evidence of program and institutional performance. Program or institutional evidence includes quantitative or qualitative, direct or indirect data that provide information concerning the extent to which an institution meets the goals it has established and publicized to its stakeholders.

Formative assessment. Formative assessment is a diagnostic tool implemented during the instructional process that generates useful feedback for student development and improvement. The purpose is to provide an opportunity to perform and receive guidance (such as in class assignments, quizzes, discussion, lab activities, etc.) that will improve or shape a final performance. This stands in contrast to summative assessment where the final result is a verdict and the participant may never receive feedback for improvement such as on a standardized test or licensing exam or a final exam.

General Education Student Learning Outcomes. GE SLOs are the knowledge, skills, and abilities a student is expected to be able to demonstrate following a program of courses designed to provide the student with a common core of knowledge consistent with a liberally educated or literate citizen. Some colleges refer to these as core competencies, while others consider general education a program.

Grades. Grades are the faculty evaluation of a student's performance in a *class* as a whole. Grades represent an overall assessment of student class work, which sometimes involves factors unrelated to specific outcomes or student knowledge, values or abilities. For this reason equating grades to SLO assessment must be done carefully. Successful course completion is indicated by a C or better in California Community College data, such as that reported in the Accountability Report for Community Colleges (ARCC).

Homegrown or Local assessment. This type of assessment is developed and validated by a local college for a specific purpose, course, or function and is usually criterion-referenced to promote validity. This is in contrast to standardized state or nationally developed assessment. In student services homegrown student satisfaction surveys can be used to gain local evidence, in contrast to commercially developed surveys which provide national comparability.

Indirect data. Indirect data are sometimes called secondary data because they indirectly measure student performance. For instance, certificate or degree completion data provide indirect evidence of student learning but do not directly indicate what a student actually learned.

Information competency. Information competency reflects the ability to access, analyze, and determine the validity of information on a given topic, including the use of information technologies to access information.

Institutional Learning Outcomes (ILO). Institutional Learning Outcomes are the knowledge, skills, and abilities a student is expected to leave an institution with as a result of a student's total experience. Because GE Outcomes represent a common core of outcomes for the majority of students transferring or receiving degrees, some but not all, institutions equate these with ILO's. ILOs may differ from GE SLOs in that institutional outcomes may include outcomes relating to institutional effectiveness (degrees, transfers, productivity) in addition to learning outcomes. Descriptions of ILOs should include dialog about instructional and student service outcomes.

Likert scale. The Likert scale assigns a numerical value to responses in order to quantify subjective data. The responses are usually along a continuum such as responses of strongly disagree, disagree, agree, or strongly agree and are assigned values such as 1 to 4.

Metacognition. Metacognition is the act of thinking about one's own thinking and regulating one's own learning. It involves critical analysis of how decisions are made and vital material is consciously learned and acted upon.

Norm-referenced assessment. In norm-referenced assessment, an individual's performance is compared to another individual. Individuals are commonly ranked to determine a median or average. This technique addresses overall mastery to an expected level of competency, but provides little detail about specific skills.

Objectives. Objectives are small steps that lead toward a goal, for instance the discrete course content that faculty cover within a discipline. Objectives are usually more numerous and create a framework for the overarching student learning outcomes which address synthesizing, evaluating and analyzing many of the objectives.

Pedagogy. Pedagogy is the art and science of how something is taught and how students learn it. Pedagogy includes how the teaching occurs, the approach to teaching and learning, how content is delivered, and what the students learn as a result of the process. In some cases pedagogy is applied to children and andragogy to adults; but pedagogy is commonly used in reference to any aspect of teaching and learning in any classroom.

Primary Trait Analysis (PTA). Primary trait analysis is the process of identifying major characteristics that are expected in student work. After the primary traits are identified, specific criteria with performance standards are defined for each trait. This process is often used in the development of rubrics. PTA is a way to evaluate and provide reliable feedback on important components of student work thereby providing more information than a single, holistic grade.

Program. In Title 5 §55000(g), a "Program" is defined as a cohesive set of courses that result in a certificate or degree. However, in Program Review, colleges often define programs to include specific disciplines. A program may refer to student service programs and administrative units, as well. [7]

Qualitative data. Qualitative data are descriptive information, such as narratives or portfolios. These data are often collected using open-ended questions, feedback surveys, or summary reports, and may be difficult to compare, reproduce, and generalize. Qualitative data provide depth and can be time and labor intensive. Nonetheless, qualitative data often pinpoint areas for interventions and potential solutions which are not evident in quantitative data.

Quantitative data. Quantitative data are numerical or statistical values. These data use actual numbers (scores, rates, etc) to express quantities of a variable. Qualitative data, such as opinions, can be displayed as numerical data by using Likert scaled responses which assign a numerical value to each response (e.g., 4 = strongly agree to 1 = strongly disagree). These data are easy to store and manage providing a breadth of information. Quantitative data can be generalized and reproduced, but must be carefully constructed to be valid.

Reliability. Reliability refers to the reproducibility of results over time or a measure of the consistency when an assessment tool is used multiple times. In other words, if the same person took the test five times, the **scores** should be **similar**. This refers not only to reproducible results from the same participant, but also to repeated scoring by the same or multiple evaluators. While the student learning outcomes process should be reliable, it does not suggest statistical reliability analysis for every item and aspect of classroom and program assessment, but rather indicates that assessments should be a consistent tool for testing the student's knowledge, skills or ability.

Rigor. California community college faculty use the term *rigor* relating to courses in the context of Title 5 §55002, such as referring to course standards of grading policies, units, intensity, prerequisites level, etc. [8] Researchers often refer to *rigor* as statistical rigor or compliance with good statistical practices.

Rubric. A rubric is a set of criteria used to determine scoring for an assignment, performance, or product. Rubrics may be holistic, not based upon strict numerical values which provide general guidance. Other rubrics are analytical, assigning specific scoring point values for each criterion often as a matrix of primary traits on one axis and rating scales of performance on the other axis. A rubric can improve the consistency and accuracy of assessments conducted across multiple settings.

Sampling. Sampling is a research method that selects representative units such as groups of students from a specific population of students being studied, so that by examining the sample, the results can be generalized to the population from which they were selected when everyone in the population has an equal chance of being selected (i.e. random). Sampling is especially important when dealing with student service data.

Standardized assessment. Standardized assessments are those created, tested, validated, and usually sold by an educational testing company (e.g., GRE's, SAT, ACT, ACCUPLACER) for broad public usage and data comparison, usually scored normatively. There are numerous standardized

assessment instruments available for student service programs which provide national comparisons.

Student Learning Outcomes (SLO). Student learning outcomes (SLOs) are the specific observable or measurable results that are expected subsequent to a learning experience. These outcomes may involve knowledge (cognitive), skills (behavioral), or attitudes (affective) that provide evidence that learning has occurred as a result of a specified course, program activity, or process. An SLO refers to an overarching outcome for a course, program, degree or certificate, or student services area (such as the library). SLOs describe a student's ability to synthesize many discreet skills using higher level thinking skills and to produce something that asks them to apply what they've learned. SLOs usually encompass a gathering together of smaller discrete objectives (see definition on previous page) through analysis, evaluation and synthesis into more sophisticated skills and abilities.

Summative assessment. A summative assessment is a final determination of knowledge, skills, and abilities. This could be exemplified by exit or licensing exams, senior recitals, capstone projects or any final evaluation which is not created to provide feedback for improvement, but is used for final judgments.

Validity. An indication that an assessment method accurately measures what it is designed to measure with limited effect from extraneous data or variables. To some extent this must also relate to the integrity of inferences made from the data.

Content Validity. Validity indicates that the assessment is consistent with the outcome and measures the content we have set out to measure. For instance, you go to take your driver's license exam, the test does not have questions about how to make sushi.

Variable. A variable is a discrete factor that affects an outcome.

Endnotes

[1] Section 55502 of Title 5 contains the following definitions related to assessment:

(b) "assessment" means the process of gathering information about individual students to facilitate student success. Assessment may include, but is not limited to, information regarding the student's study skills, English language proficiency, computational skills, aptitudes, goals, learning skills, career aspirations, academic performance, and need for special services. Assessment involves the collection of such information at any time, before or after enrollment, except that the process of assigning a grade by an instructor shall not be considered part of the assessment process. Once a grade has been assigned and recorded in a student's transcript it can be used in the assessment process.

(c) "assessment instruments, methods or procedures" means one or more assessment instruments, assessment methods, or assessment procedures, or any combination thereof. These include, but are not limited to, interviews, standardized tests, holistic scoring processes, attitude surveys, vocational or career aptitude and interest inventories, high school or college transcripts, specialized certificates or licenses, educational histories and other measures of performance. The term "assessment instruments, methods or procedures" also includes assessment procedures such as the identification of test scores which measure particular skill levels, the administrative process by which students are referred for assessment, the manner in which assessment sessions are conducted, the manner in which assessment results are made available, and the length of time required before such results are available.

Furthermore, Section 55202 states that the use of assessment as a prerequisite for placement into a course requires the use of multiple measures:

(c) The determination of whether a student meets a prerequisite shall be based on successful completion of an appropriate course or on an assessment using multiple measures. Any assessment instrument used shall be selected and used in accordance with the provisions of Subchapter 6 (commending with §55500) of Chapter 6 of this Division.

[2]   Grant Wiggins, Grant (1990). The case for authentic assessment. Practical Assessment, Research & Evaluation, 2(2). Retrieved February 16, 2004 from http://PAREonline.net/getvn.asp?v=2&n=2.
Copyright 1990, PAREonline.net.

[3]   Bloom B. S. (1956). Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain. New York: David McKay Co Inc.

[4]   Angelo, T. A., & Cross, K. P. (1993). Classroom assessment techniques: A handbook for college teachers (2nd ed.). San Francisco, CA: Jossey-Bass

[5]   Pacheco, D. A. (1999). Culture of evidence. Retrieved June 1, 2003, from the California Assessment Institute, Resources Web site: *http://www.cai.cc.ca.us/ Resources/Pacheco.htm*

[6]   ACCJC. 2008. Characteristics of Evidence: Guide to Evaluating Institutions. Page 10. Author: Novato, CA.

[7]   Title 5 §55000(g) defines an educational program as "an organized sequence of courses leading to a defined objective, a degree, a certificate, a diploma, a license, or transfer to another institution of higher education"

[8]   As one example of the use of the term rigor Title 5 §55002 (b) (2) (C) says "In particular, the assignments will be sufficiently rigorous that students successfully completing each such course, or sequence of required courses, will have acquired the skills necessary to successfully complete degree-applicable work."