What the *!#? is an SLO?

Writing Student Learning Outcomes

Train the Trainers Workshop
De Anza College
Spring 2009
Marcy Alancraig, Cabrillo College

Quiz

Before diving into the nuts and bolts of writing SLOs, let's take a little quiz to see what you already know. Choose the best answer for the multiple choice questions and answer the others as either true or false:

1. A Student Learning Outcomes refers to student demonstration of:
   a) Knowledge
   b) Skills
   c) Abilities
   d) Attitudes
   e) All of the above

2. The 2002 ACCJC Accreditation Standards require that SLOs are written and assessed in:
   a) Courses
   b) Programs
   c) Degrees and Certificates
   d) Student Services and the Library
   e) All of the above

3. Course level SLOs should cover:
   a) Discipline knowledge
   b) Discipline skills
   c) Discipline values and beliefs
   d) Answers a & b only
   e) All of the above

4. An SLO is really the same thing as an objective in our course outlines.

5. According to both the Academic Senate for California Community Colleges and the ACCJC, writing SLOs and designing assessment processes is a faculty responsibility.

6. Faculty members can write different SLOs for the same course.

7. The college community must be involved in helping to define Institutional Outcomes since it affects the entire campus.

8. At what level of the ACCJC rubric on Student Learning Outcomes must colleges be by 2012?
   a) Awareness
   b) Development
   c) Proficiency
   d) Continuous Quality Improvement

The answers to these questions are in the Appendix A

General Information on Student Learning Outcomes

Who, What, When, Where and Why?

Student Learning Outcomes have proven to be such a monumental shift in the way we approach education that it is important to get a good grasp of the fundamentals before diving into writing them. Like a good journalist, let's look at the five key questions -- "who, what, when, where and why" -- to describe this change. It will make more sense if we take them a bit out of order.

What?

Let's start with a definition of student learning outcomes, posted in the SLO Workbooks on the Cabrillo College SLO website: "Student learning outcomes (SLOs) describe the:

- knowledge
- skills
- abilities
- attitudes
- beliefs
- opinions
- values

that students have attained by the end of any set of college experiences – classes, occupational programs, degrees and certificates and even encounters with Student Services or the Library." The stress is on what students can **DO** with what they've learned.

Student Learning Outcomes capture the big picture. SLOs:

- Describe the broadest goals for the activity, ones that require **higher-level** thinking abilities.
- Require students to **synthesize** many discreet skills or areas of content.

In addition, SLOs:

- Ask students to then **produce** something - papers, projects, portfolios, demonstrations, performances, art works, exams, educational plan 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.

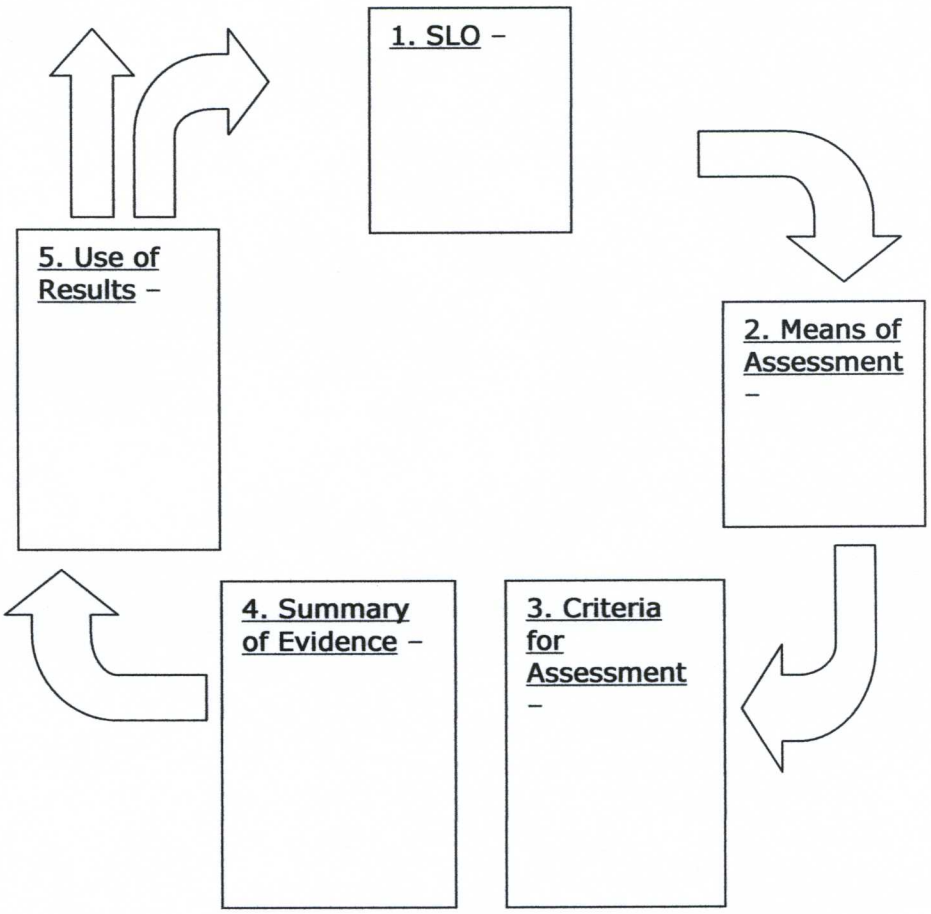
The 2002 ACCJC Accreditation standards state that SLOs must be written for each:

- Course
- Program, including General Education and Vocational
- Degree and Certificate

In addition, Standard IIB and Standard IIC state that both the library and Student Services must use student learning outcomes to assess the effectiveness of their services. But writing SLOs is not enough. Those student learning outcomes must also be assessed or measured and the results used to improve teaching and learning.

To understand what an SLO is, you must also understand the assessment cycle. The graphic below illustrates what is known as the Assessment Loop, a process that departments, programs and institutions go through as they write SLOs, create a method to assess them, detail the criteria that measures that assessment and most importantly, dialog about the results so that improvements are made.

Assessment Loop



The Assessment Loop is actually making explicit a process that faculty undertake on a regular basis. How many times after a teaching a class or holding a counseling session or even attending a campus-wide meeting, have you internally evaluated the interaction and thought, "Well, that went well" or "Gee, next time I'll change this or that..." The Assessment Cycle simply formalizes that process and records the results in some way. The good news is that are many ways to do this. It is the task of each college to define

this cycle, designing assessment processes and ways to record them in a way that fits their individual culture. The first step is to write Student Learning Outcomes.

Who?

So, who should be writing these student learning outcomes? The Accreditation Standards and Title V both give faculty primary responsibility for writing and assessing student learning outcomes. Because student learning outcomes describe the higher level skills that students will take away from a course, program or degree, writing them is not an individual act. Departmental members must discuss the SLOs and all agree on their wording. This is no different from the way departments have traditionally agreed upon the wording for a course objectives in the Course Outline of Record. Campus-wide outcomes for degrees or general education required a broader discussion with representatives from the campus at large. At many colleges, this has occurred through the local Academic Senates or other campus-wide governance committees.

Why?

This approach to teaching believes that "covering" material during a course does not necessarily **guarantee** that students learn it. The instructor has delivered the course, but how do we know if the students have truly absorbed the material, or better yet, can apply it? The 2002 Accreditation Standards state that success and retention are no longer considered an accurate way of answering that question. Success is determined by students emerging from courses with integrated, higher learning skills that they can **demonstrate** to others. Those demonstrations are the proof 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. This concept of **transparency** is key to using SLOs successfully in the classroom.

The final key concept is **practice.** Before being evaluated on an SLO, students should have the opportunity to practice the skill or tasks that compose it.

When?

When do SLOs need to written? Half of the colleges in California have chosen to put SLOs on the official course outline of record (see "where" below), so the timing of the writing may depend on that college's curriculum schedule. Many colleges have also linked the writing and assessing of student learning outcomes to their on-going program review cycle. However the college chooses to organize it, what they have done must be reported each spring to the ACCJC in their regular Annual Report. This report asks colleges to cite the percentage of SLOs written and assessed in courses, programs, general education, student services and the library.

In addition, the ACCJC has created the rubric shown below to define how campuses will be judged in regards to student learning outcomes. All ACCJC colleges are expected to be at the proficiency level of the rubric by 2012.

Rubric for Evaluating Institutional Effectiveness – Part III: Student Learning Outcomes

Levels of Implementation	Characteristics of Institutional Effectiveness in Student Learning Outcomes *(Sample institutional behaviors)*
Awareness	• There is preliminary, investigative dialogue about student learning outcomes. • There is recognition of existing practices such as course objectives and how they relate to student learning outcomes. • There is exploration of models, definitions, and issues taking place by a few people. • Pilot projects and efforts may be in progress. • The college has discussed whether to define student learning outcomes at the level of some courses or programs or degrees; where to begin.
Development	• College has established an institutional framework for definition of student learning outcomes (where to start), how to extend, and timeline. • College has established authentic assessment strategies for assessing student learning outcomes as appropriate to intended course, program, and degree learning outcomes. • Existing organizational structures (e.g. Senate, Curriculum Committee) are supporting strategies for student learning outcomes definition and assessment. • Leadership groups (e.g. Academic Senate and administration), have accepted responsibility for student learning outcomes implementation. • Appropriate resources are being allocated to support student learning outcomes and assessment. • Faculty and staff are fully engaged in student learning outcomes development.
Proficiency	• Student learning outcomes and authentic assessment are in place for courses, programs and degrees. • Results of assessment are being used for improvement and further alignment of institution-wide practices. • There is widespread institutional dialogue about the results. • Decision-making includes dialogue on the results of assessment and is purposefully directed toward improving student learning. • Appropriate resources continue to be allocated and fine-tuned. • Comprehensive assessment reports exist and are completed on a regular basis. • Course student learning outcomes are aligned with degree student learning outcomes. • Students demonstrate awareness of goals and purposes of courses and programs in which they are enrolled.
Sustainable Continuous Quality Improvement	• Student learning outcomes and assessment are ongoing, systematic and used for continuous quality improvement. • Dialogue about student learning is ongoing, pervasive and robust. • Evaluation and fine-tuning of organizational structures to support student learning is ongoing. • Student learning improvement is a visible priority in all practices and structures across the college. • Learning outcomes are specifically linked to program reviews.

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Where?

Once SLOs are written, where should they live? Since the advent of the 2002 ACCJC Accreditation Standards, some have argued that the SLOs should be on the Course Outline of Record. The COR is an official document required in California to use for articulation agreements between community colleges and transfer institutions. Some colleges fear that they cannot get agreements if their SLOs do not match the SLOs of nearby transfer institutions. In addition, since SLOs are not static or fixed, some colleges are reluctant to attach them to their official CORs. Others feel that, like course objectives, the regular curriculum process is sufficient for making needed changes. Why go to the trouble of creating another place to officially list SLOs, they argue, when the Course Outline of Record is already available. A 2007 survey by the statewide Academic Senate revealed the state is evenly split in half, with 50% of colleges keeping their SLOs as addenda to the official Course Outlines of Record or in a separate place, while the other 50% insert them directly into the document.

A discussion has also arisen about SLOs being in the syllabi for all courses. Standard IIA6a of the 2002 ACCJC Accreditation Standards, states that "in every class section, students receive a course syllabus that specifies learning objectives consistent with those in the institutional officially approved course outline." Since the official Course Outlines of Record have course objectives which all faculty teaching a particular course need to meet, it makes sense to provide students with those objectives. However, since students and the public should be apprised of what the expected outcomes for a course should be, then it is also reasonable to put the SLOs that have been agreed upon by the faculty in a discipline into course syllabi.

Key Principles:

Here are the key concepts to remember about student learning outcomes.

1. An SLO is an over arching goal, one that asks students to synthesize many discreet skills using higher level thinking skills and to produce something that asks them to apply what they've learned.

2. The ACCJC Accreditation standards required that SLOs be written for all courses, programs, degrees and certificates, Student Services and the Library. This has proven so helpful that some colleges are also writing them for Administrative Services.

3. SLOs should be agreed upon by the group that is responsible for delivering the learning experience; for example, all the instructors who teach the same course should agree and teach to the SLOs for that course; all members of a program or department should agree to the program or departmental SLOs; the entire college should be involved in defining and writing institutional SLOs.

Back to Basics: Writing Student Learning Outcomes

Now that you understand the "who, what, when, where and why," let's get back to basics. Remember that Student Learning Outcomes describe the knowledge, skills, abilities or attitudes that a student can **demonstrate** by the end of your course, program, degree or student service. They describe the big picture, and include four major components. SLOs:

1. Require the use of **higher-level** thinking abilities.
2. Ask students to **synthesize** discreet skills or areas of content.
3. Result in the **production** of educational plans, papers, projects, portfolios, performances, exams etc. that require students to **apply** what they've learned.
4. Require faculty to **evaluate** or **assess** the product to measure a student's achievement or mastery of the outcomes.

SLOs versus Course Objectives

How is that different from course objectives? Course objectives are on smaller scale, describing small, discreet skills or "nuts and bolts" that require basic thinking skills. They are subsets of outcomes. Think of objectives as the building blocks used to produce whatever is used to demonstrate mastery of an outcome. Objectives can be practiced and assessed individually, but are usually only a portion of an overall project or application. See the table below for a more detailed contrast between outcomes and objectives.

	Objectives	**Outcomes**
Scope	Skills, tools, or content to engage and explain a particular subject	Overarching results - subsequent learning
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 (5-9) to facilitate modification and improvement of teaching and learning.

"Outcomes demonstrate an understanding and application of a subject beyond the nuts and bolts which hold it together; objectives represent the nuts and bolts." (Bakersfield College Chemistry Professor).

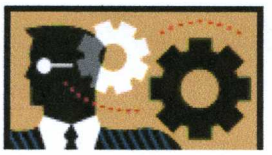
SLO or Objective?

The statements below were written for programs and courses. Analyze the statements to determine whether they are objectives, or student outcomes. Write OB for objectives and SLO for student learning outcome in front of each statement. Hint: Some statements may be neither.

	(Engineering course) This course introduces senior engineering students to design of concrete components of structure and foundation and integrate them into overall design structures.
	(History course) Identify key dates in American History to 1865.
	(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.
	(English course) Write a thesis statement that introduces the paper's argument
	(Epidemiology course) Define and assess an epidemic for a given population and recommend factors influencing the use of health services.
	(Ecology course) Critically review and synthesize the findings in scientific literature and make appropriate ecological recommendations based on current knowledge.
	(Sociology course) Understand that individuals (and their families) must be regarded uniquely as individuals with many contributing variables such as multicultural issues.
	(Nutrition course) List the elements of the food pyramid.
	(Immunology course) This course will provide students with a medically relevant foundation of knowledge regarding the components and basic principles of the immune system and the vocabulary and language of immunology.
	(Math course) Given data students will analyze information and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content.

Answers are in appendix C

Look at the following three tables describing the knowledge, skills and abilities, and attitudes in a course. Note that there is a **flow**, a line of progression from the most basic objectives to the most sophisticated outcomes. The charts are adapted from the work of Janet Fulks and Kate Pluta from Bakersfield College.



Knowledge

Objectives
Basic
Knowledge
Thinking

Outcomes
More Sophisticated
Higher Level

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Student remembers 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 discriminates, organizes, and scrutinizes assumptions in an attempt to identify evidence for a conclusion.	Student creatively applies knowledge and analysis to integrate concepts or construct an overall theory.	Student judges or evaluates information based upon standards and criteria, values and opinions.
Cite Label List Enumerate Identify Imitate Match Name Quote Recall Reproduce State Write	Convert Define Describe Discuss Estimate Explain Generalize Identify Illustrate Locate Paraphrase Restate Summarize	Apply Chart Compute Demonstrate Determine Dramatize Establish Make Manipulate Prepare Project Solve Use	Analyze Compare Contrast Correlate Diagram Dissect Differentiate Distinguish Infer Investigate Limit Outline Separate	Assemble Create Construct Design Develop Formulate Generate Hypothesize Initiate Invent Modify Reframe Synthesize	Access Appraise Conclude Critique Decide Defend Diagnose Evaluate Judge Justify Rank Recommend Support

Skills and Abilities

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

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 Attend Describe Explain Locate Observe Realize Receive Recognize	Behave Comply Cooperate Discuss Examine Follow Model Present Respond Show Studies	Accept Adapt Balance Choose Differentiate Defend Influence Prefer Recognize Seek Value	Adapt Adjust Alter Change Customize Develop Improve Manipulate Modify Practice Revise	Authenticate Characterize Defend Display Embody Habituate Internalize Produce Represent Validate Verify

Sample Student Learning Outcomes

Here are sample outcomes written by faculty from different colleges. Note the verbs and how they reflect higher level thinking skills, making them SLOs rather than objectives. Some of these are the only outcomes for the course, while others are one of several.

Forensic Anthropology

-Using the basic principles of forensic anthropology, **analyze** skeletonized human remains to determine sex, age at death, height and genetic ancestry.

Biology

-**Utilize** the scientific method and **evaluate** the scientific validity of information presented by the media and other sources.

Chemistry 1A

- **Solve** quantitative chemistry problems and demonstrate reasoning clearly and completely. **Integrate** multiple ideas in the problem solving process. Check results to make sure they are physically reasonable.

- **Analyze** the results of laboratory experiments, evaluate sources of error, synthesize this information, and express it clearly in written laboratory reports.

Child Development

-Given a description of an infant with a particular disability, **analyze** ways to provide support and education to parents including; on-site, in-home, and community services available.

Construction Fundamentals: Principles and Practices (lab)

-**Construct** a building applying the skills and knowledge obtained in this class.

Dance: Street Dance and Hip Hop

-**Perform,** with an increasing degree of proficiency, simple Hip Hop movements, **demonstrating** increasing control of skills pertaining to memorization, physical safety, body awareness, alignment, and aesthetic valuing.

Labor Studies - Collective Bargaining

-**Apply** collective bargaining theories from both management and labor perspectives.

-**Analyze** and apply the principles of collective bargaining and labor law during negotiations.

-**Utilize** negotiation skills in labor and employer relations.

Nutrition

-**Analyze** a documented nutritional problem, **determine** a strategy to correct the problem, and **write** a draft nutritional policy addressing the broader scope of the problem

Theatre Art (a series of courses)

Intro to Acting

-Select, analyze, and perform selections from dramatic texts **utilizing** the performance skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

Beginning Acting

-Select, analyze, and perform selections from dramatic texts **demonstrating increasing control** over the skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

Intermediate Acting

-Select, analyze, and perform selections from dramatic texts **demonstrating consistent control** and use of the performance consistent skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

Advanced Acting

-Select, analyze, and perform selections from dramatic texts **demonstrating a mastery** of the performance skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

English Composition series

Basic Writing (2 levels below transfer)

-Write paragraphs and short essays **demonstrating** basic sentence-level competency and culminating in a portfolio.

-Comment on ideas and writing strategies in reading assignments.

Elements of Writing (1 level below transfer)

-Write essays demonstrating sustained clarity of intention, awareness of audience, and various writing techniques.

-Articulate responses to readings in various genres.

1A – College Composition (transfer level)

- Write essays, including research-based writing, **demonstrating** academic rhetorical strategies and documentation.

-Analyze and evaluate assigned and researched texts.

1B – Composition and Literature (transfer level)

-Write literary analysis, interpretation, and research-based essays.

-Demonstrate close readings of literary texts for analysis and interpretation.

2 – Critical Thinking (transfer level)

- Write evidence-based essays demonstrating logical reasoning and argumentative skills.

- Evaluate logical reasoning and argument in assigned and researched texts.

Guide to Writing SLOs

Beginning is often the most difficult step. Remember that you have been doing this all along. Now is your chance to put what you know intuitively as a professional into words. Use the Worksheet below and:

1) In one sentence, describe one **major** piece of knowledge, skill, ability or attitude that a student will have gained by the end of your class. Describe what students will **do** -- not content, activities or hours.

2) Use action verbs. See the previous pages for examples.

3) Write it in language that a student will understand.

4) Make sure that the outcome is something that can be assessed or tested.

5) Hint: Sometimes it's easier to start backwards by thinking about the major assessments you use in the course. These would be the products or demonstrations of your outcomes. Make a list of your major assignments for this course. Then try to describe in one sentence what the students are being asked to demonstrate in those assignments.

6) A word of warning: Be careful when describing attitudes in a learning outcome. They are hard to assess. Ask yourself if the attitude is crucial to success in your course. If a student doesn't have a certain attitude, but possesses the knowledge and skills being taught, is that satisfactory?

Some Dos and Don'ts:

1. Don't use the words "understand" - go for higher level thinking skills.
2. Do distinguish the difference between an A and B courses of the same number.
3. Keep the number of outcomes short – no more than four or five at most . Use the outcomes to describe the **major** skills or knowledge students will take away from the course and what they will **produce** to show you that they have mastered those skills.

Writing Student Learning Outcomes Worksheet

Course Name and Number _____

Outcome **1 sentence that describes a major piece of knowledge, skill, ability or attitude that students can demonstrate by the end of the course**	**Assessment** **Major Assignment, Project or test used to demonstrate or apply outcome**

Outcome 1 sentence that describes a major piece of knowledge, skill, ability or attitude that students can demonstrate by the end of the course	Assessment Major Assignment, Project or test used to demonstrate or apply outcome

Student Learning Outcome Checklist	Yes	No
Do the SLOs include active verbs?		
Do the SLOs suggest or identify an assessment?		
Do the SLOs address the expected level of learning for the course using Bloom's Taxonomy as a guideline?		
Are the SLOs written as outcomes rather than as objectives? 1. Language indicates an important overarching concept versus small lesson or chapter objectives. 2. Outcomes address what a student will be able to **do** at the completion of the course. 3. SLOs address student competency rather than content coverage.		
Are the SLOs appropriate for the course? • Consistent with the curriculum document of record • Represents a fundamental result of the course • Aligns with other courses in a sequence, if applicable • Represents collegiate level work		
Will students understand the SLOs?		
Comments or suggestions:		

How the *!#? am I Going to Lead Workshops About This Stuff?

Workshop Planning

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Outline of Possible Workshop

I. Quiz

II. Background Information

III. Objective versus SLO activity

IV. Sample SLOs

V. Identifying SLOs in Course Outline activity

VI. Writing SLOs Activity

VII. Sharing and Revising SLOs Activity

Take a moment to evaluate what the workshop plan above (and what we just did). List its strengths and weaknesses. What might you want to do differently?

Frequently Asked Questions

What are the top three to five burning questions that you think workshop participants will have? List them on this page AND possible answers.

Exercise: Analyze and Revise SLOs

Assume that a faculty member has been drafting SLOs and asked you for feedback. Print off the SLO checklist on the next page and use it to analyze the SLOs below.

- Select two DRAFT SLOs from below.
- Think of questions you could ask the faculty member that might clarify the SLO.
- Suggest some modifications to the language.

Upon completing this course or program students will:

1. Improve their ability to read, listen to, and/or follow directions.

2. Design experiments and interpret data according to the scientific method in order to evaluate a hypothesis.

3. Write papers that

    - develop a thesis
    - present coherent and logical claims
    - are organized with clear links between claims and support
    - are well developed with sufficient and relevant evidence
    - use standard American English correctly
    - make stylistic choices in persona, syntax, and diction
    - gauge the needs of and address a specific audience

4. Faculty and staff will demonstrate knowledge of disabilities and accommodations and services available for students in the DSP&S program.

5. Demonstrate Social responsibility.

6. Apply graphing capabilities of the spreadsheet software to visually enhance the presentation of results obtained from analytical tasks.

What the *!#? is Course-Embedded Assessment?

Creating Assessments and Rubrics

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Course-Embedded Assessment

Course-embedded assessment is a way of measuring the SLOs of a course, program or institution by using assignments or artifacts that students produce in class. The assignments are analyzed to see what they reveal about both teaching and learning.

Here's how it works:

1. Faculty choose a major assignment, one that they feel addresses an SLO for the course. If only exams are given, they select exam questions that do the same thing. The assignment should be something **authentic**, which describes an "assessment that evaluates the student's ability to use their knowledge and to perform tasks that are approximate those found in the work place or other venues outside of the classroom setting" (definition by Janet Fulks, Bakersfield College). Usually, this corresponds to the culminating assignment in a class – term paper, speech, performance, portfolio etc.

2. Faculty create a rubric or primary trait scale to score the assignment. This should be detailed enough to look at various aspects of the assignment. While it is not required, many faculty discover that this works best when students receive the rubric in advance and know the instructors expectations in detail.

3. Faculty give the assignment and grade it using the rubric or look at how students did on the answers to the selected test questions.

4. Faculty return the assignment or test with the grade to the students as usual.

5. Faculty also analyze the results by looking for the student issues and needs that were revealed by the student performance on the assignment or test questions. Where are students doing well? Where do they need to improve?

6. Faculty close the assessment loop by recording how they will make changes in order to deal with the issues that were revealed.

7. This process becomes part of a departmental dialogue and is somehow recorded for accreditation purposes. Colleges have designed many ways to do this; it must arise from your campus culture.

Pros and Cons of Course-Embedded Assessment

	Pros	**Cons**
Workload	The assignment is already required for the class -- student don't have to do extra work; faculty don't have create an additional assessment	Faculty do have to take extra time to create a rubric or primary trait scale to grade the assignment
	Pro	**Con**

Motivation	Students perform better when motivated by a grade	This doesn't necessarily mean they will do what is required of them to perform well
Grading	The rubric can make grading easier, more consistent and faster. Allowing students to use the rubric to score themselves before or after you use it can turn grading into a learning activity.	Creating a rubric can be a challenge
Expectations	Students know what to do; some studies show that they perform better as a result	Some faculty argue that telling students how they will be graded in advance is teaching to the test; in addition, see "motivation con" listed above
Student Complaints	Because the rubric details what is expected of them, students complain less about their grades	???
Standardized Testing	This method provides an viable and cost-effective alternative	Some colleges believe standardized testing is more reliable and efficient

Embedded Assessment versus Grading

"But how is this different from grading?" you ask. A grade, by itself, is a summative judgment of student performance, an overall conclusion. It can't really tell you what specific parts of the assignment a student had trouble with or did well on, giving you clues about what needs to be changed or improved in your class. Course-embedded assessment asks that you look more closely at how students do on your assignments. Simply reporting out the percentages of how many students got A's, B's or C's is not enough. You must analyze how they did and what it is telling you. Finally, though many faculty informally evaluate each assignment, making changes as needed, this formalizes the process. Additionally, the process should also include some dialogue with colleagues about what you discovered and how you are going to change things.

Choosing an Assignment

Go back to the SLOs for the course. Which major assignments do you give that could be used to measure how students are doing on those SLOs. One assignment can be used to measure more than one SLO; it can serve multiple purposes. Which assignments require students to apply what they've learned, to use higher level thinking skills, to synthesize many small elements that you've taught? Choose an assignment that does all that and you'll have it. And if you don't? Perhaps it's time to rethink your major assignments!

Creating a Rubric or Primary Trait Scale

A **rubric** translates the standards and criteria that make up grading into some sort of chart or description. A primary trait scale does this in even more detail. Rubrics can be used to score many kinds of written assignments or exams, papers, projects, speeches or portfolios. They are not useful, however, as a grading mechanism for multiple choice or short answer tests. However, you can analyze those kinds of assessments by looking at groups of questions to also determine how well students are mastering your outcomes.

A rubric answers the question, "What precisely is an A on a particular assignment or project? How is it different from a B or C?" While this is information that many of us carry inside our heads, in order to clearly assess student learning outcomes, it must be articulated in writing. However, it is up to you – the expert in your classroom – to define these standards and criteria and how they will be applied to the class work that you assign. Your rubric will be as individual as your grading style and pedagogy.

Sample Rubrics

A rubric is an individual as an instructor, the assignment or the course. They can be organized and presented in many different ways. Before designing your own, it's helpful to look at rubrics developed by other teachers in different disciplines. The following rubrics were all created by Cabrillo College faculty and have been used successfully by the instructors. Take a look at all the different ways you can organize and present your grading criteria to students.

Note the sample grading sheet on the last page that is tied to an English 1A rubric. Students receive both the rubric and grading sheet before attempting the assignment. The sheet is used to summarize how well the students did on each aspect of the grading rubric. It also articulates what they need to do to improve their grade in the future. Students grade themselves using the rubric and grading sheet before handing in their assignment. In this way, it also becomes a learning activity for them

Sample Rubrics

Short Essay Rubric

(Used in a Human Genetics course.)

Score	Content	Organization	Development	Use of Language
5	Answer is appropriate to the question. Content is factually correct.	Clear sense of order. Begins with a thesis or topic sentence. Supporting points are presented in a logical progression.	Develops each point with may specific details. Answers question completely.	Uses technical or scientific terminology appropriately and correctly. No major grammatical or spelling errors.
4	Answer is appropriate to the question. Content may have one or two factual errors.	May lack a thesis sentence, but points are presented in a logical progression.	Each point supported with some details and evidence. All important points included.	Accurate word choice. No more than 2 major errors and a few minor errors.
3	Content relates peripherally to the question; contains significant factual errors.	Logic of argument is minimally perceivable. Points presented in a seemingly random fashion, but all support argument.	Sparse details or evidence. Question only partially answered.	Ordinary word choice; use of scientific terminology avoided. Some serious errors (but they don't impair communication).
2	Content unrelated to question.	Lacks clear organizational plan. Reader is confused.	Statements are unsupported by any detail or explanation. Repetitious, incoherent, illogical development.	Limited vocabulary; errors impair communication.

Developed by Denise Lim, Biology.

Sample Rubric for Assessing Photographs

1. **Concept, idea, visualization:**

   10 pts Shows coherency of the concept with a high degree of originality and sophistication. The idea is well stated with visual elements and cues.

   9 pts Shows coherency of the concept with some originality and sophistication. The idea is stated with visual elements and cues but needs to be more clear or more strongly evident.

   8 pts Shows some coherency of the concept with commonly sued, cliché or stereotyped imagery. The idea is obtuse, and requires greater clarity through the use of visual elements and cues.

   7 pts Lacks general coherency of the concept. Many of the visual elements and cues do not lead the viewer to the intended idea.

   6 pts Lacks any coherency of the concept. Visual elements and cues do not lead the viewer to the intended idea.

   0 pts The work was not presented to me.

2. **Composition & design:**

   10 pts Shows strong internal integrity of the visual elements. Nothing needs to be added or removed – framing is superb.

   9 pts Shows internal integrity of the visual elements. A visual element needs to be added, moved or removed – framing needs some slight adjustment.

   8 pts Shows obvious weaknesses in the internal integrity of the visual elements. Many visual elements need to be added, moved or removed – framing needs definite adjustments.

   7 pts Image is breaking apart – there is very little internal integrity of the visual elements. Most visual elements need to be rethought – framing needs major readjustment.

   6 pts Visual integrity is nonexistent and image has broken apart. All of the visual elements need to be rethought – framing needs a complete overhaul.

   0 pts The work was not presented to me.

3. **Technical:**

   10 pts Shows master in the use of photographic equipment and techniques to attain the assignment parameters.

   9 pts Shows a good command of the use of photographic equipment and techniques to attain most of the assignment parameters.

   8 pts Shows some command of the use of photographic equipment and techniques to attain some of the assignment parameters.

   7 pts Shows limited command of the use of photographic equipment and techniques to attain a few of the assignment parameters.

   6 pts Shows little or no command of the use of photographic equipment and techniques to attain a few or none of the assignment parameters.

   0 pts The work was not presented to me.

Developed by Susan Hoisington, Photography.

Sample Rubric for Oceanography 10 Lab Project

Bathymetric Map and Cross Section (Lab #2) Grading Criteria

An "A" grade (9 or 10 out of 10):

- The contour lines are extremely smooth and evenly spaced with none of them touching each other.
- Every water depth # has the appropriate contour line next to it and the entire map is "contoured".
- The overall presentation is excellent.
- The cross section is accurate and complete and the bottoms of the canyons and top of the ridge are not flat.
- The ends of the cross section are complete and the paper shows the vertical exaggeration.

A "B" grade (8 out of 10):

- The contour lines are neat and smooth and appropriately spaced and some are touching, but very few.
- Nearly all the water depth #'s are contoured, some may be missing, but very few.
- The overall presentation is good and very few "shadows" are showing.
- The cross section is accurate, but some information is missing, particularly on the ends.
- Vertical exaggeration may or may not be shown.

A "C" grade (6 or 7 out of 10):

- The contour lines are a little wide and show fringes, some may have double ends and some of them are obviously touching each other.
- Some of the water depth #'s may not be contoured and the contour lines are all not evenly or properly spaced. There may be shadows on the map and the overall presentation is slightly sloppy.
- The cross section is mostly accurate, but some information is off line and missing, particularly on the ends.
- Vertical exaggeration may not be shown.

A "D" and "F" grade (5 or less out of 10):

- The contour lines are sloppy and inaccurate and some or many are touching each other.
- Several of the water depth #'s are not accurately contoured and the map is not complete.
- The overall presentation is below or far below average.
- The cross section is inaccurate, and much information is off line and missing.
- Vertical exaggeration may be shown.

Developed by Dave Schwartz, Geology.

English1A Essay Rubric

W0W!!! (90-100 Points - Grade A)

- Begins with an introduction that shows your understanding of the issues, grabs your readers' attention, and presents a strong and insightful thesis or point of view.
- Engages the topic in a thoughtful and individual way, showing originality, elegance and clear thinking.
- Develops the topic using a strong detail, quotes from other sources, and a unique synthesis of ideas.
- Utilizes library research and quotes from outside sources, always properly citing them using the MLA format.
- Possesses a fully explained and logical progression of ideas that indicates the writer's sensitivity to different ways of looking at the topic with an awareness of key counter arguments and a consideration of how those alternate positions shape your understanding of the topic.
- Ends with a strong conclusion that clarifies the significance of the paper's lessons
- Chooses words aptly and sometimes inventively.
- Demonstrates mastery of most of the grammar and usage conventions of Standard English.
- Uses phrasing, tone, and expression that reflects a unique personal voice.

Good! Almost There (80-89 Points - Grade B)

- Begins with an introduction that shows some understanding of the issues, gives some background and has an adequate thesis or point of view.
- Presents a thoughtful response to the topic, using appropriate reasoning and a partially realized analysis that is accurate.
- Develops the topic showing appropriate details, a sense of orderly progress between ideas, and use of references that reveal a familiarity with the topic.
- Uses words precisely if not creatively.
- Varies sentence structure enough to read smoothly.
- Utilizes library research and quotes from outside sources, usually properly citing them using the MLA format.
- Uses competently the conventions of written English, containing few, if any, errors in sentence structure, punctuation and capitalization or usage.
- Uses mostly consistent phrasing, tone and expression that reflects a personal world view and style.

Developed by Marcy Alancraig, English. Note grading sheet at the end.

Getting there (70-79 Points - Grade C)

- Presents an adequate response to the topic, using superficial analysis and weak point of view.
- Uses logical reasoning, but the supporting evidence is general and imprecise with few examples. There may be some small factual errors.
- Uses a less precise vocabulary and may contain awkwardness of expression.
- Utilizes library research and quotes from outside sources, with fairly consistent use of the MLA citation format. May make some errors.
- Contains minor errors in mechanics and usage, and perhaps one or two more distracting errors in sentence structure.
- Uses fairly consistent phrasing, tone and expression that reflect a personal world view and style with occasional inconsistencies.

Try Again (60-69 Points - Grade D)

- Responds to the topic illogically, without a coherent structure or focus.
- Has no point of view, uses mostly summary and lacks evidence and support.
- Makes several large, factual errors.
- Makes enough errors in usage and sentence structure to cause a reader serious, if occasional, distraction.
- Improperly uses the MLA format for citations. Makes major errors in quoting and uses few sources.
- Uses frequently inconsistent phrasing, tone and expression, often formulaic and imitative; lacks evidence of a personal worldview and style.

Let's not even go there (50-59 Points - Grade F)

- Doesn't attempt the task or distorts it
- Lacks organization or detail.
- Contains many distracting errors in sentence structure, simplistic or inaccurate word choice, many repeated errors in grammar and usage.
- Not enough is written to get a sense of personal worldview and style.

English 1A Grading Sheet

Name: _____ Total Grade: _____

This paper is one of the pieces of evidence for Outcomes #2:

- Write essays, including researched based writing on the ecological, anthropological, historical and literary aspects of the Monterey Bay region, demonstrating academic rhetorical strategies and documentation.

Based on the grading rubic listed under Grading Requirements, your grade is divided into the elements listed in the chart below.

Elements of Grade	Wow!	Good	Getting There	Try Again	Let's Not Go There
Introduction					
Thesis or Claim					
Response to Topic					
Evidence to support thesis					
MLA citation and documentation					
Awareness of counter arguments					
Flow and order of Ideas					
Conclusion					
Word Choice					
Grammar and Punctuation					
Personal Voice					

Comments:

Creating Rubrics Worksheet 1

Course Name and Number	
Core Competency or Course SLO	
Assessment Tool/Assignment	
Assignment Components	
1.	2.
3.	4.
5.	6.
7.	8.

Creating Rubrics Worksheet 2

Articulate your standards for each component

Score: **A**	Write a sentence that describes the component at this level. Be as specific as possible.
Component 1:	
Component 2:	
Component 3:	
Component 4:	
Component 5:	
Component 6:	
Component 7:	
Component 8:	

Creating Rubrics Worksheet 2

Articulate your standards for each component

Score: **B**	Write a sentence that describes the component at this level. Be as specific as possible.
Component 1:	
Component 2:	
Component 3:	
Component 4:	
Component 5:	
Component 6:	
Component 7:	
Component 8:	

Creating Rubrics Worksheet 2

Articulate your standards for each component

Score: **C**	Write a sentence that describes the component at this level. Be as specific as possible.
Component 1:	
Component 2:	
Component 3:	
Component 4:	
Component 5:	
Component 6:	
Component 7:	
Component 8:	

Creating Rubrics Worksheet 2

Articulate your standards for each component

Score: **D**	Write a sentence that describes the component at this level. Be as specific as possible.
Component 1:	
Component 2:	
Component 3:	
Component 4:	
Component 5:	
Component 6:	
Component 7:	
Component 8:	

Creating Rubrics Worksheet 2

Articulate your standards for each component

Score: **F**	Write a sentence that describes the component at this level. Be as specific as possible.
Component 1:	
Component 2:	
Component 3:	
Component 4:	
Component 5:	
Component 6:	
Component 7:	
Component 8:	

Analyzing Test Questions

If you assess student learning in your courses through multiple choice exams, it's possible to analyze the questions in your tests to assess how well students are mastering any of the core competencies. The first two steps help you to analyze your questions. Step Four describes how to use campus scoring machines to help you complete your analysis.

Step One: Identify the questions on the test which you feel address the Core competency that you are assessing. There should be several questions throughout an exam that you feel require students to demonstrate mastery of the specific competency.

Step Two: Deepen your analysis of the questions by further categorizing them. A way to do this is offered in *Effective Grading,* by Walvoord and Anderson, page 87, created by Patricia Schlecht of Raymond Walters College in Ohio.

Level A: Those that require higher critical thinking, including analysis, synthesis or evaluation. For these questions, there may be no directly visible connection between the course material and the test question.

Level B: Those that require lower critical thinking skills, such as application. These questions can be directly answered from the background provided by course materials. There is a visible connection between the material and the test questions.

Level C: Those that utilize knowledge and comprehension, but not critical thinking. The answers to these questions arise directly from the course material, with some changes in wording and phrasing.

Step Three: Grade the entire exam as you do usually. If you use Scantron or any other campus scoring machines, program it with the key to your entire exam.

Step Four: Create a second key that only scores the answers to the questions that you have identified as addressing the core competency. Ask the machine to give you a summary that reports how many students missed each question.

Step Five: Analyze the results, looking at how many students missed what level of question. Are you pleased or satisfied with how they did? Is there anything you could do differently to try to ensure that more students answer the questions correctly? In other words, how well do you think students are demonstrating mastery of the competency in your exam?