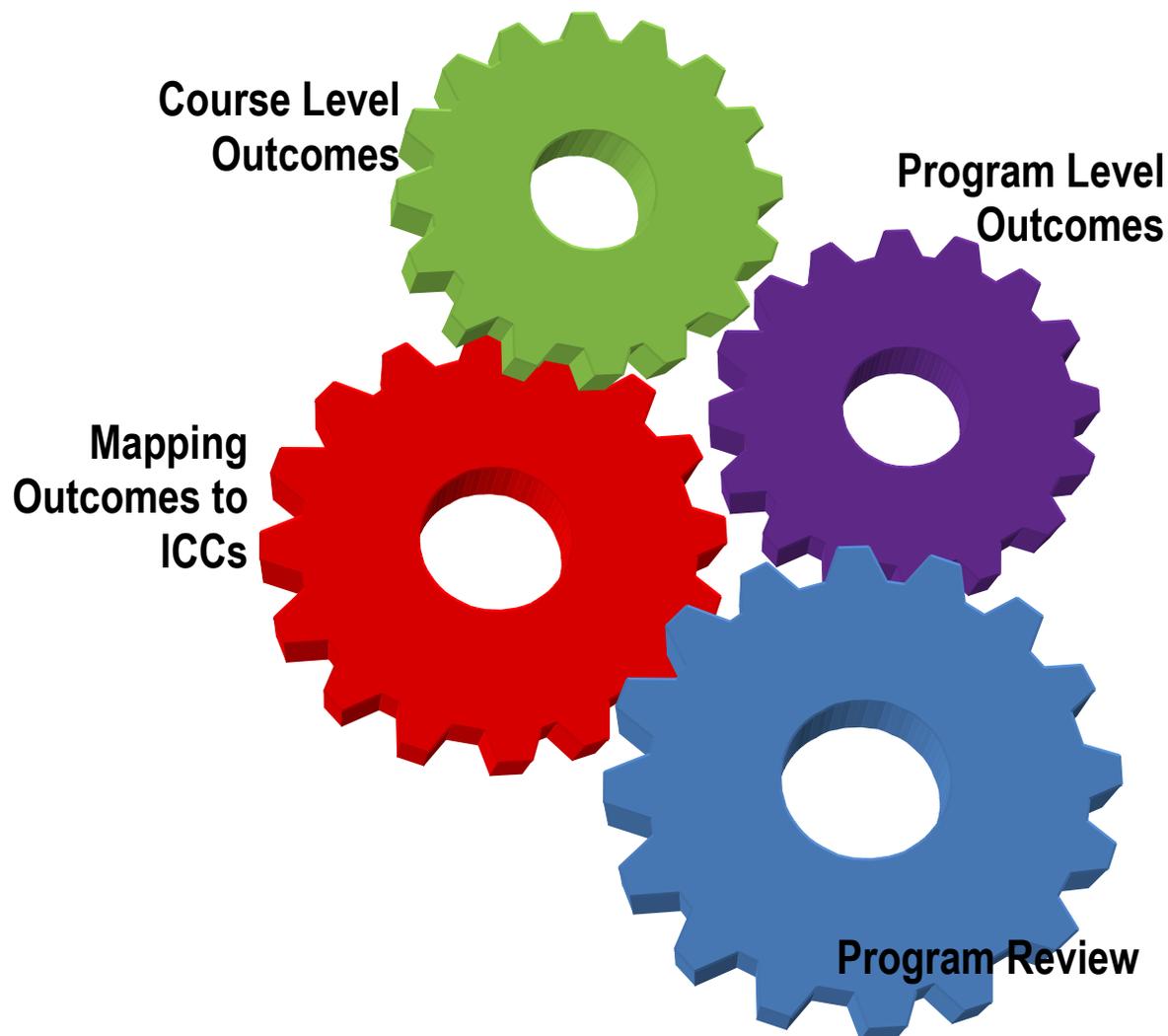


De Anza College

Instructional Student Learning Outcome Process Guide



De Anza College provides an academically rich, multicultural learning environment that challenges students of every background to develop their intellect, character and abilities; to realize their goals; and be socially responsible leaders in their communities, the nation and the world.

De Anza College fulfills its mission by engaging students in creative work that demonstrates the knowledge, skills and attitudes contained within the college's Institutional Core Competencies:

- *Communication and expression*
- *Information literacy*
- *Physical/mental wellness and personal responsibility*
- *Global, cultural, social and environmental awareness*
- *Critical thinking*

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Preface

This document is intended to describe the Student Learning Outcome Process to a person unfamiliar with the process and/or unfamiliar with the implementation of the process at De Anza College.

The actual data entry is handled as a separate issue.

From the academic year of 2009 – 2010 through 2011 – 2012 the entering of Student Learning Outcomes, their methods of assessment, summary of results, reflections, and enhancement was handled on the ECMS system.

Handbook for the use of this system can be found at <http://deanza.edu/slo/> .

Beginning Spring 2012 the SLOAC data along with the Program Level Outcomes and assessments will be handled on TracDat.

Handbook for the use of this system will be posted at <http://deanza.edu/slo/> during Winter Quarter 2012.

The Student Learning Outcome Process parallels the procedure an instructor uses quite naturally. At the end of the quarter thoughts arise such as “That went well, but next time I would like to ...” or “the students seemed to achieve better lab results now that I began with an easier lab”. The SLO process just formalizes this type of thinking, offers a way of recording enhancements based upon outcomes, and encourages the exchange of ideas and pedagogy with one’s peers.

SLO Process: The Basics

Categories of outcomes and assessments.

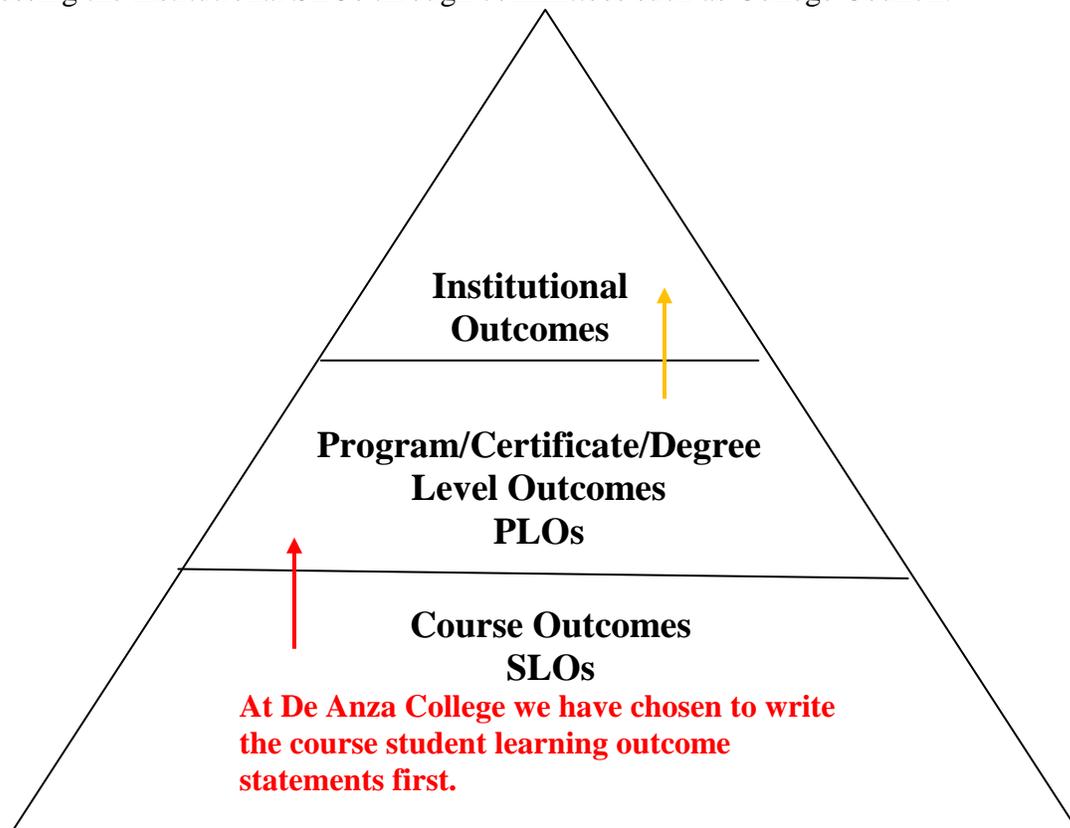
Student Learning Outcomes are directed at assessing and improving the extent to which students are achieving the skills recognized as the outcomes in individual courses.

Program Level Outcomes assess how well the program area is reaching the needs of the students considering the program as a whole as well as the certificates and degrees offered through the program.

Program SLOs are known as Program Level Outcomes or PLOs. A PLO states what the student should be able to do at the completion of a program, certificate, or degree. These statements for certificates and degrees are included in De Anza's catalogue. Course SLO statements should be associated to PLOs.

Institutional Learning Outcomes are aimed at assessing to what extent the Institutional Core Competencies (Appendix A) and Institutional Strategic Initiatives (Appendix B) are being met. These are assessed through the process of mapping each program level outcome to one or more ICCs or Strategic Initiatives.

All outcome statements 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 to and teach to the SLOs for that course; all members of a program or department should agree to the program/certificate/degree SLOs; the entire college is involved in defining and assessing the institutional SLOs through committees such as College Council.



SLO Process: The Basics continued

Why was the Student Learning Outcome Process Adopted?

- ❖ Encourages dialogue among peers so that a culture of inquiry is established leading to a best practices sustainable process for improving student learning.
 - ❖ The SLO process is used to make decisions regarding resources by justifying the need for faculty and/or equipment.
 - ❖ SLO process informs instruction.
 - ❖ The ACCJC Accreditation standards require that SLOs be written for each
 - Course
 - Program (including General Education and Vocational)
 - Degree and certificate
 - Student Service
 - Library
-

The Steps for Faculty

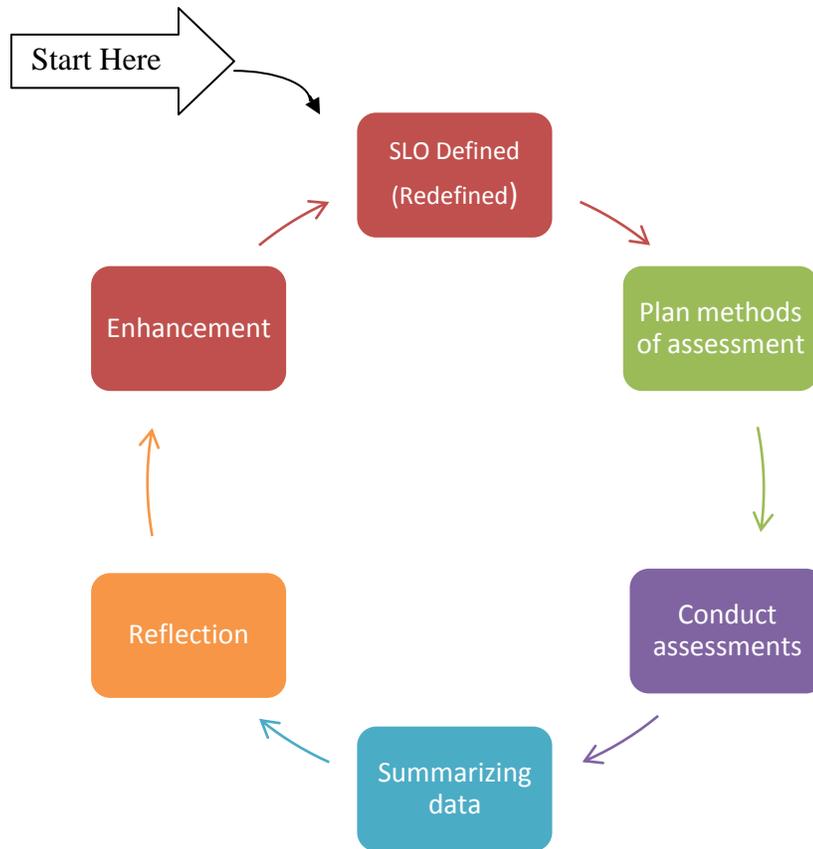
1. Write the SLOs (Student Learning Outcomes) for each course.

This is a process to be completed in dialogue with your teaching peers: at department meetings, during the SLO Convocation Day held Spring quarter, and/or during ad hoc mini-meetings throughout the year.

In addition, each certificate, degree, and/or program needs to have program level outcomes. These are often based on the SLOs for individual courses within the program. The PLOs will be mapped to the College's institutional core competencies and/or strategic outcomes.

2. Decide on the method or methods of assessment or consider assessment that you already do and see if they apply. The instrument of assessment is your choice. This assessment(s) may be constructed by individual faculty member teaching the course or it may be an assessment created by a group of faculty.
3. Conduct the assessments on one or several sections of the course. (This data collection might span several quarters.)
4. Summarize findings. During the first cycle, your findings will allow you to set a target or benchmark to describe student success in that area.
5. Determine the extent to which students have achieved the stated outcomes. Reflect upon how the course can be "enhanced" to improve the learning experience for the student. This step is most meaningful when accomplished through dialogue with peers.

6. Close the loop by re-assessing the course once the enhancements are in place. Once again reflect on results of assessment once further enhancements take place. The SLOAC (Student Learning Outcome Assessment Cycle) is illustrated below.



Step 1: Writing SLO Statements

What are Student Learning Outcomes?

Student Learning Outcomes are the skills that the student will possess at the completion of your course or of the completion of a program. An outcome completes the sentence: “At the completion of this course/program the student will be able to ...”

A student learning outcome is a measurable outcome of an educational experience. Something the student *knows* or *can do* or *feel* after completing the educational experience successfully. It is an over-arching goal that is achieved by the completion of the course, certificate, degree, or program.

Since one needs to assess or measure whether the outcome is being achieved by the students it is well to consider the assessment instrument as one is crafting the student learning outcome itself. The assessment tool will be asking students to produce something – papers, projects, portfolios, demonstrations, performances, art works, exams, educational plan, etc. – that applies what they have learned.

Outcome vs Objective

Objectives are the building blocks that students need to master in order to achieve the desired outcomes. For example, in a basic algebra course, a basic objective is that students will add equals to both sides of a linear equation. The outcome is that the student can eventually solve linear equations.

Test your skills in recognizing an outcome by completing the exercise in the table below. Write SLO for if the statement is stated as a student learning outcome; write OB if the statement is really an objective; and, write NA if it is neither. The answers are in Appendix C.

	(Engineering course) This course introduces engineering students to design of concrete components of structure and foundation and integrate them into overall design structure.
	(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) <u>Critically review and synthesize the findings in scientific literature and make appropriate ecological recommendations based on current knowledge.</u>
	(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.

Crafting SLO statements for your course

Begin the statement or at least the thought process with the phrase: “At the end of the course the student will be able to do/think/feel _____”

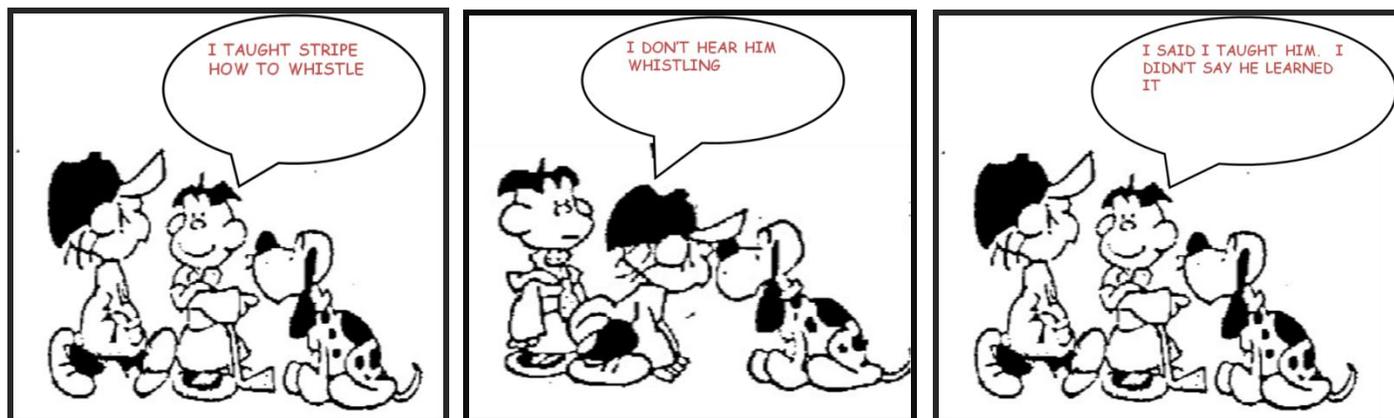
Some pointers:

- Keep the number of student learning outcomes to a minimum.
- Consider how you will measure the outcome as you are writing the outcome. It is best to employ a table with a column stating the outcome, another to state how you will assess the outcome, and a third stating when the assessment will occur. Perhaps, a fourth column suggesting a benchmark or target for how you will know that the student has achieved the outcome.

Outcome	Assessment Method	Quarter(s)
<i>Write a sentence that describes a major piece of knowledge, skill, ability or attitude that students can demonstrate by the end of the course</i>	<i>Major Assignment, Project or test used to demonstrate or apply outcome (often more than one)</i>	<i>State the quarters when assessment will be conducted</i>

- *A team approach to SLO assessment is highly encouraged. (www.deanza.edu/slo)* The student learning outcome statements and the assessment methods should be discussed with one’s peers. All instructors who teach the same course should agree on and teach to the same outcomes. The methods of assessment may vary.
- Student Learning Outcome Assessment tools may or may not be the same instruments used to directly determine the final grade of an individual student at the end of the course.
- Avoid the use of the words such as “understand” and “know”. Instead choose a higher level thinking skill from Blooms Taxonomy. (Appendix D)
- Determine how you will share your expectations with your students
Will you show them a rubric that defines criteria for success on your “capstone” assignment?
Will you place your SLO(s) on your syllabus?
Or will you create your own transparency?

Step 2 Assessment



(Leveque, 1999-2000)

Can you utilize an assignment or exam that you are currently using to assess if your students can do what you claim they will be able to do in your student learning outcome?

YES!

Wouldn't it be great to have to opportunity to explore possibilities with your colleagues?

YES!

How good is good enough? By what criteria are you going to define "proficiency" . . . define that the students have did well enough? Set a benchmark?

Steps Involved with the Assessment of Outcomes

- Identify means/method of assessment and when the assessment will take place. The assessment might span more than one quarter depending upon desired sample size.. If possible define the benchmark or target that means success for the outcome. (In the ECMS-SLO system this is referred to as Phase II.)
- Conduct the assessment and summarize the findings. Keep a copy of the assessment tool. (In the ECMS-SLO system this is part of Phase III.)
- Reflect on the findings and decide upon enhancement(s) to better students' learning experience. (In the ECMS-SLO system this is part of Phase III.)

SLO Assessment Tools

Note that this section applies to assessing both course level and program level outcomes.

Embedded course assessments (developed by faculty)

Course-embedded Assessment involves the assessment of the actual work produced by students in our courses. The assessment may select a course paper, a lab assignment or elements of final exams/tests/quizzes and use these student artifacts to assess the achievement of a specific student learning outcome.

The faculty member who teaches the course will evaluate the student by assigning a grade, but in addition the student work will be evaluated for the purpose of assessing the learning objectives of the course.

Steps in Designing Embedded Test Questions:

1. Faculty member chooses one of the student learning outcomes for a particular course.
2. Faculty member incorporates question(s) directed at assessing if a student has mastered this SLO in an exam. Alternatively, the faculty might choose a paper, presentation, lab assignment, or any other course work that directly relates to the particular SLO. Rubrics will be helpful in these cases. (see section on rubrics)
3. Faculty member keeps documentation of the scores achieved by the students (not associated with student names).
4. At the end of the quarter, faculty member tabulates results, discusses results with peers, writes reflection on this dialogue, and then suggests enhancements to improve student learning.

Surveys

Student entrance and/or exit surveys

Potential employer surveys

Alumni surveys

Survey Monkey is a free online tool to develop your own surveys. It has proved helpful to many of our faculty in assessing student learning outcomes and program level outcomes.

Entrance/Exit Student Tests

Focus Groups or student interviews

Focus groups are particularly effective for acquiring a consensus of how well a SLO has been met from the student's viewpoint and for eliciting suggestions for improvement. Focus groups are more flexible than surveys or test items because they allow for question clarification and follow-up questions to probe vague or unexpected responses.

Steps in conducting a focus group:

1. Choose between 6 and 12 students.
2. Design a set of open-ended questions (not Yes/No questions)
3. Administer the questions to the group. During the interviewing be sure to ask follow up questions such as "Please tell me more about ...", "Could you give an example of ...", or "Please explain what you meant by ...".
4. Take notes writing down exact responses. A note taker would be most helpful. Alternatively a recorder could be used with permission of participants.
5. To begin the data analysis you might want to group responses in a meaningful order. Then summarize responses. Quantitative analysis is not appropriate.

Student Interviews should be similarly conducted but the interview is on a one-on-one basis.

Portfolios

First, the instructor needs to decide on what should be included. Will the student choose what to include? Will it encompass work from throughout the quarter? Or, will the portfolio be only what is collected for a particular project in the course? Secondly, a process for evaluation of the portfolios must be in place. Often instructor-student conferences are the best method for assessment of portfolios.

Capstone Courses

Capstone course would be used at the program level to assess program level outcomes. In a capstone course the student has the opportunity to apply what has been learned in a course or to engage in an experience that summarizes what has been learned as a result of successful enrollment in a program.

While capstone courses are not generally in place at De Anza the concept can be applied when assessing programs where a sequence of courses is necessary for completion of that program. The last course in that sequence becomes the “capstone” for assessing one or more of the program level outcomes.

Standardized content exams

Two programs that have standardized exit exams at De Anza College are English Readiness and ESL Readiness.

Professional licensure exams

This is most applicable to program level outcomes.

These are in place for many Career Technical Education programs at De Anza College: Automotive Technology, Child Development, Health Technologies – Phlebotomy, Massage Therapy, Medical Laboratory Technology, Nursing, and Paralegal Studies.

Conduct the assessment and summarize the findings

Decide on the sample size. A rule of thumb is that a representative sample is at least 25% of the number of students enrolled in the course per year. Consider the randomness of the sample. Day classes often vary with evening or online courses. Thus, endeavor to include all types of course delivery.

Rubrics can be of great help not only to summarizing the findings but also to the quality of work that students produce. Essentially a rubric translates the standards and criteria that determine the grade into some sort of chart or description. The rubric answers the question of what does an ‘A’ mean? If the grade is a ‘C’ what areas could the student have done better to earn a ‘B’ or ‘C’?

Rubric for grading a computer programming lab project: This is a screen shot from an Excel spreadsheet which can dynamically compute scores on each portion of assignment and total score. It is adapted from Excel workbook authored by David Karp of Chaffey College. The Excel workbook is available for download at <http://deanza.edu/slo/>.

STUDENT'S NAME		Mary Pape													
Name of assignment		Lab Assogment 0													
Total points possible on this assignment		40													
Total raw possible		35										Total raw received		30.85	
Student's percentage		88 %										Student's Score on this Assignment:		35	
		Unsatisfactory (Fill in with your definition of Unsatisfactory)			Needs Work (Fill in with your definition of Needs Work)			Proficient (Fill in with your definition of Proficient)			Excellent (Fill in with your definition of Excellent)				
Description of task		Val.	-		+	-		+	-		+	-		+	Score
Program documentation: name as comment and printed to output, Pre & Post statements; other comment statements		10												x	10
Function to input data		5	x												3
Function to calculate scores		5									x				4.35
Function to output		5											x		4.5
Structure Chart		3											x		2.7
Output		5											x		4.5
other		2											x		1.8

Rubric for grading a group presentation and written report in Business Information Systems course

Team Members: _____	
Topic: _____	
Proposal (8 points)	
Gantt Chart (2 points) Full credit if specific.	
On Time (5)	
Oral Presentation	
Opportunity and solution clearly presented (10)	
Evidence of use of lifecycle steps (10)	
Captures interest of audience (10)	
Use of computer applications in presentation (10)	
Written Presentation	
Section 1* (Summary for Management) – page 1 (10)	
Section 2* (Summary of key components) – page 2 (10)	
Section 3* (Complete and effective solution of a specific business problem/issue evidencing use of the system development life cycle steps) (25)	
Total	100

Step 3 Reflect, Adjust, Enhance

Use of Results

What are your findings/conclusions regarding 1) Whether and to what degree students acquired the targeted skills, knowledge, or other targeted outcome, 2) Whether, how, and why the SLO itself should be changed or eliminated, 3) Whether, how, and why your method of assessment should perhaps be changed, and 4) Whether and how you are considering changing anything about your course or its delivery as a result of your findings; and if so, what specific improvement(s) in outcomes you are aiming for.

The results might show that your students met or surpassed your expectations. But, even so, is there a little something that could make the course more meaningful for the students? Is it time to expect more of your students? Should the SLO statement be reworded?

Reflect on ways that can enhance student learning especially if the target was not met by the students.

Are there other methods of **delivery**? Students appreciate having materials and notes presented in class also online. Some students and/or some topics are best learned in groups. Maybe an assignment is too difficult, not explained well enough, or maybe too easy.

Perhaps too little **time** was spent on the tasks that were to develop the necessary skills.

Perhaps more **resources** are needed. Is there is a simulation available that will assist students in achieving the outcome? What more or better equipment help? Do students needed tutoring outside of class?

Where more resources are needed, it is important to be able to tie the request back to student learning outcomes.

Curriculum might not be designed for needs of today. Is the course sequencing and amount of content appropriate?

Ask! Ask students. Converse with your peers. Faculty love to talk about how they teach once you get them started.

Maybe the reasons why the SLO may not be working are **outside the control of the faculty** in the department (e.g., earthquake, construction, etc.). It is okay to reflect on both internal and external reasons why students may not be able to demonstrate the goal that was set by the SLO. This information can be included as part of “using the results”.

The department or instructor might want to “retire” this SLO and start working on the next priority SLO. (**NOTE: DO NOT DELETE AN SLO IN ECMS** — you will want to keep a record of all the work the department has done. Rather set it as “inactive”.)

De Anza College

Example 1 Narrative: Reflection and Enhancement (Phase III in ECMS system)

This example could represent an individual or a group of faculty's findings for an EWRIT 1A course

Changes since previous assessment:

Issue:	Response:
Changes to the outcomes statement? To the course material? To the assessment tool? Etc. (Leave blank if Not Applicable)	<i>This outcome statement was revised several times since May 2009. I also revamped my rubric.</i>

Methods Assessment tool and methodology:

Issue:	Response:
Describe the assessment tool and methodology you used to assess this outcome.	<i>Research paper and a "WW I Internment" paper (two assessments performed)</i>

Findings and Conclusions:

Issue:	Response:
Summarization of the assessment results. Student performance – positive and negative aspects	<i>In general the students who were able to read the source material critically did very well but only 15% of the students performed well on both assessments</i>
Student needs and issues that were revealed	<i>The majority of the students exhibited a lack of critical reading skills and ability to analyze source materials, especially with the Internment paper.</i>
Areas for improvement	<i>The top 15% of the students scored exceedingly high – there was a big gap between their scores and the rest of the class.</i>
Did your students meet your "expectations"/meet your defined benchmark of "student proficiency"?	<i>Great improvement is needed in the teaching of critical reading so that students may perform better. Students who performed poorly were unable to analyze source materials for bias or to effectively compare and contrast the historical views they heard with the factual history. They are not "reading" the material well and are unable to articulate their analysis.</i>

Enhancement (Planned Action):

Issue:	Response:
Describe how the assessment results will be applied to enhance or improve student learning content, teaching methods assignment, course evaluation procedures, the SLO . . .	<i>I will revise activities leading up to and/or supporting assignment/activities. More frequent feedback on student progress was requested by the students so I will incorporate 10 minute appointments for students who exhibit notably weak scores in these activities</i>
Identify, describe an explain which of your enhancements or planned actions will require additional	<i>I would suggest that there are professional growth activities that would provide training in teaching reading and writing together, Create more time and</i>

resource allocations (such as staffing, technology needs, capital items, basic skill, new course offerings, etc.	<i>space for faculty to share techniques that could improve teaching critical reading.</i>
--	--

De Anza College

Example 2 Narrative: Reflection and Enhancement (Phase III in ECMS system)

This example could represent an individual or a group of faculty's findings for a Biology 40A course

Changes since previous assessment:

Issue:	Response:
Changes to the outcomes statement? To the course material? To the assessment tool? Etc. (Leave blank if Not Applicable)	Based on last year's data, I revised my grading rubrics for the assignments (case studies) used for assessment. I clarified my expectations for students in terms of the cellular and molecular biology knowledge I expected them to demonstrate.

Methods Assessment tool and methodology:

Issue:	Response:
Describe the assessment tool and methodology you used to assess this outcome.	I assigned a series of case studies centered around the SLOs. Students received patient data, diagnosed the patients, and explained to peers the cellular and molecular bases for diseases using poster presentations. Rubrics were designed to include categories related to each SLO. Students received rubrics at the time the case studies were assigned. In analysis, I averaged scores for each rubric area. One area of the rubrics scored students' abilities to apply patient data as evidence to support a diagnosis. Those rubric areas contributed to assessment of this SLO.

Findings and Conclusions:

Issue:	Response:
Summarization of the assessment results. Student performance – positive and negative aspects	Generally speaking, students did an excellent job of confronting confusing data and assembling it into evidence that supported a diagnosis. The average of scores for these rubric areas was a 96%. This indicates students demonstrated appropriate skills in "thinking like a scientist" and working collaboratively.
Student needs and issues that were revealed	However, some students still failed to effectively distinguish relevant evidence from tangential evidence. Rather than focusing on the patient data directly related to their diagnosis, they indiscriminately discussed all patient data.

Enhancement (Planned Action):

Issue:	Response:
Describe how the assessment results will be applied to enhance or improve student learning content, teaching methods assignment, course evaluation procedures, the SLO.	I will try to better model the process of evaluating evidence. Distinguishing highly relevant scientific evidence vs. tangentially relevant scientific evidence is a tricky skill, but I will try to provide more opportunities (assignments, case studies, etc.) that provide opportunities for student practice.
Identify, describe an explain which of your enhancements or planned actions will require additional resource allocations (such as staffing, technology needs, capital items, basic skill, new course offerings, etc.	The biggest improvement I need is better facilities for using teamwork and peer teaching in class. Fixed seating lecture halls make it extremely difficult to cultivate effective and equitable teamwork environments. I would love to work in a lecture hall with tables instead of desks, or at least a room with movable desks.

SLO Process Assistance

Instructional SLO Coordinators	Faculty in Instruction area	Mary Pape Toño Ramirez	papemary@fhda.edu (x8877) ramireztono@fhda.edu (x5327)
SSLO/AUO Coordinator	Members of Student Services and Administrative Support Groups	Jim Haynes	haynesjim@fhda.edu (x8954)
Instructional Research	Assistance with surveys: Survey Design/Development/Implementation	Mallory Newell	newellmallory@fhda.edu (x8777).

Helpful websites:

<http://www.deanza.edu/slo/>

<http://www.deanza.edu/ir/>

APPENDIX A

DE ANZA COLLEGE INSTITUTIONAL CORE COMPETENCIES

The Institutional Core Competency statements are a promise to the communities that support De Anza College that students graduating with an A.A. or A.S. degree, or who will transfer to a four-year college or university, will be able to demonstrate the knowledge, skills, and attitudes contained within all of the five competency areas, based on general education and discipline-specific courses at the lower division level. Students who earn a certificate, or have taken courses for personal educational development, will be expected to demonstrate the knowledge, skills, and attitudes specified within one (or more) of the five competency areas.

COMMUNICATION AND EXPRESSION Students will communicate clearly, express themselves creatively, interpret thoughtfully and logically, and engage actively in dialogue and discussion, while paying attention to audience, situation, and (inter) cultural context. Communication and expression may be written or oral, verbal or nonverbal, informational or artistic.

INFORMATION LITERACY Students will recognize when information is needed and locate, critically evaluate, synthesize, and communicate information in various formats. They will use appropriate resources and technologies while understanding the social, legal, and ethical issues for information and its use.

PHYSICAL/MENTAL WELLNESS AND PERSONAL RESPONSIBILITY Students will recognize lifestyles that promote physical and mental well-being, engage in self-reflection and ethical decision-making, explore career choices and life goals, practice effective individual and collaborative work habits, and demonstrate a commitment to ongoing learning.

GLOBAL, CULTURAL, SOCIAL & ENVIRONMENTAL AWARENESS Students will recognize their role as local, national, and global citizens. They will participate in a democratic process, respect social and cultural diversity, appreciate the complexity of the physical world, and understand the significance of both environmental sustainability and social justice.

CRITICAL THINKING Students will analyze arguments, create and test models, solve problems, evaluate ideas, estimate and predict outcomes based on underlying principles relative to a particular discipline, interpret literary, artistic, and scientific works, utilize symbols and symbolic systems, apply qualitative and quantitative analysis, verify the reasonableness of conclusions, explore alternatives, empathize with differing perspectives, and adapt ideas and methods to new situations.

In the implementation of the SLO process at De Anza, the individual student learning outcomes and the program level outcomes are mapped to the ICCs with the help of the table below. (Adopted by the De Anza Academic Senate on March 16, 2009)

1) COMMUNICATION AND EXPRESSION*	
a	Communicate clearly,
b	Express themselves creatively,
c	Interpret thoughtfully and logically, and
d	Engage actively in dialogue and discussion, while paying attention to audience, situation, and (inter) cultural context.
* <i>Communication and expression may be: Oral communication, Verbal, Nonverbal, Informational, or Artistic</i>	
2) INFORMATION LITERACY **	
a	Recognize when information is needed
b	Locate information in various formats,
c	Critically evaluate information in various formats
d	Synthesize information in various formats
e	Communicate information in various formats
** They will use appropriate resources and technologies while understanding: Social, legal, or ethical issues for information and its use.	
3) PHYSICAL/MENTAL WELLNESS AND PERSONAL RESPONSIBILITY	
a	Recognize lifestyles that promote physical well-being,
b	Recognize lifestyles that promote mental well-being,
c	Engage in self- reflection and ethical decision-making
d	Explore career choices and life goals,
e	Practice effective individual and collaborative work habits,
f	Demonstrate a commitment to ongoing learning
4) GLOBAL, CULTURAL, SOCIAL & ENVIRONMENTAL AWARENESS	
a	Recognize their role as local, national, and global citizens.
b	Participate in a democratic process
c	Respect social and cultural diversity
d	Appreciate the complexity of the physical world
e	Understand the significance of both environmental sustainability and social justice
5) Critical Thinking	
a	Analyze arguments
b	Create and test models
c	Solve problems,
d	Evaluate ideas
e	Estimate and predict outcomes based on underlying principles relative to a particular discipline
f	Interpret literary, artistic, and scientific works
g	Utilize symbols and symbolic systems,
h	Apply qualitative and quantitative analysis
i	Verify the reasonableness of conclusions
j	Explore alternatives
k	Empathize with differing perspectives
l	Adapt ideas and methods to new situations

Appendix B

Strategic Initiatives:

Outreach

Individualized Attention to Student Success and Retention

Cultural Competence

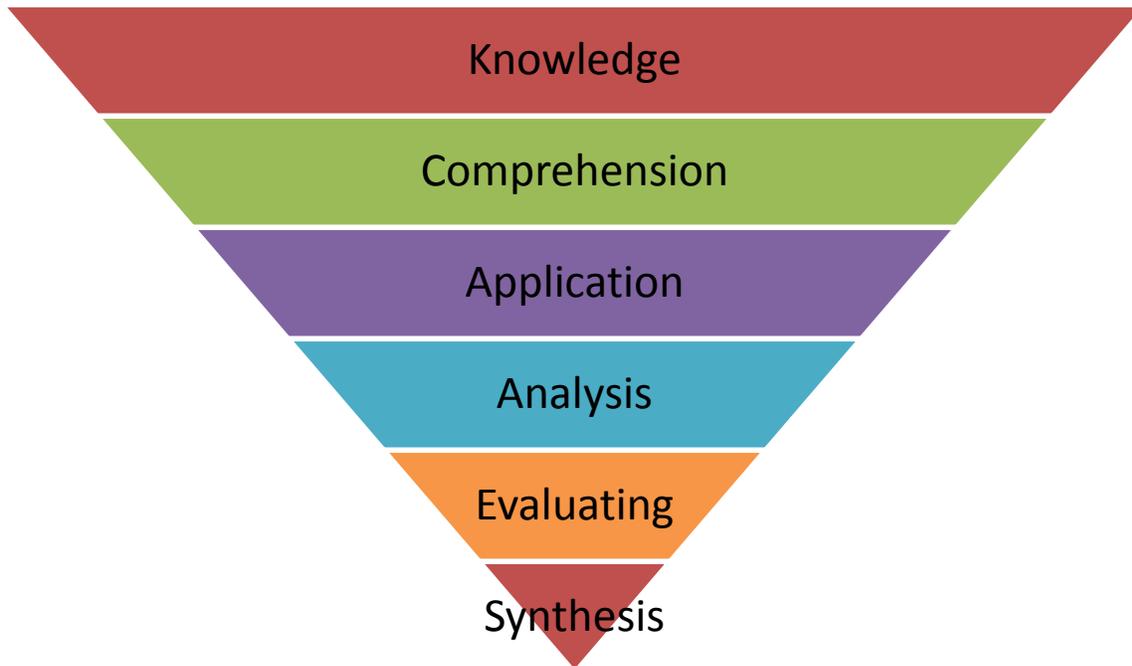
Community Collaborations

Appendix C

OB	(Engineering course) This course introduces engineering students to design of concrete components of structure and foundation and integrate them into overall design structure.
SLO	(History course) Identify key dates in American History to 1865.
SLO	(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.
SLO	(English course) Write a thesis statement that introduces the paper's argument.
SLO	(Epidemiology course) Define and assess an epidemic for a given population and recommend factors influencing the use of health services.
SLO	(Ecology course) Critically review and synthesize the findings in scientific literature and make appropriate ecological recommendations based on current knowledge.
OB	(Sociology course) Understand that individuals (and their families) must be regarded uniquely as individuals with many contributing variables such as multicultural issues.
SLO	(Nutrition course) List the elements of the food pyramid.
OB	(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.
SLO	(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.

Appendix D
Blooms Taxonomy

Since the student is being asked to assimilate many discreet concepts or skills the SLO statements need to be written with higher thinking level verbs from Bloom's Taxonomy. There are six major categories, which are listed in order below, starting from the simplest behavior to the most complex. The categories can be thought of as degrees of difficulties.



Weak SLO statement:

The student will know the important battles of the American Civil War.

Stronger

The student will be able to outline the major battles of the American Civil War in chronological order.

The table below shows words to use when writing meaningful outcomes.

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
acquire	arrange	apply	analyze	alter	appraise
attend	categorize	calculate	appraise	calculate	argue
choose	change	change	break down	categorize	assess
collect	chart	choose	categorize	change	compare
complete	cite	classify	classify	classify	conclude
copy	circle	compute	combine	combine	consider
define	classify	conduct	compare	compile	contrast
describe	compile	construct	conclude	compose	critique
detect	conclude	demonstrate	contrast	conduct	decide
differentiate	convert	develop	criticize	constitute	describe
distinguish	defend	discover	deduce	construct	discriminate
duplicate	demonstrate	employ	defend	create	explain
find	determine	generalize	detect	deduce	interpret
identify	diagram	manipulate	diagram	derive	judge
imitate	differentiate	modify	differentiate	design	justify
indicate	distinguish	operate	discriminate	devise	recommend
isolate	document	organize	distinguish	develop	relate
label	draw	predict	evaluate	discover	standardize
list	edit	prepare	formulate	discuss	summarize
mark	estimate	produce	generate	document	validate
match	explain	relate	identify	expand	
name	extend	restructure	illustrate	explain	
order	extrapolate	show	induce	formulate	
outline	fill in	solve	infer	generalize	
place	follow	transfer	outline	generate	
recall	formulate	use	paraphrase	modify	
recognize	gather		plan	organize	
reproduce	generalize		point out	originate	
select	give example		present	paraphrase	
state	give in own		question	plan	
underline	words		recognize	predict	
	illustrate		relate	produce	
	infer		save	propose	
	interpolate		select	rearrange	
	interpret		separate	reconstruct	
	itemize		shorten	relate	
	locate		structure	reorganize	
	make		subdivide	revise	
	organize			rewrite	
	paraphrase			signify	
	predict			simplify	
	prepare			specify	
	quote			summarize	
	read			synthesize	
	rearrange			systematize	
	record			tell	
	relate			transmit	
	reorder			write	
	rephrase				
	represent				
	restate				
	rewrite				
	summarize				
	translate				
	update				

Appendix E FAQ

Is the SLO Assessment Cycle to be used to evaluate faculty?

No, this has been explicitly ruled out by the Faculty Association and by a resolution adopted by the Academic Senate ().

The SLO Assessment Cycle is strictly aimed at improving the learning experience of our students. The process invokes dialogue among faculty within programs. A culture of inquiry is instigated by the cycle of assessment, enhancement and reassessment.

How often should courses be assessed?

All courses and each program should be assessed at least once during a comprehensive program review cycle. The next comprehensive program review is scheduled for the 2013-14 academic year.

Should SLOs be on the course syllabus?

In order for students to benefit the most the student needs to know and comprehend what he/she is expected to do. Thus, the student needs to know what the Student Learning Outcome is.

Best practices dictate that the SLOs should be on the course syllabus. However, in addition, place them wherever course content resides such as on Catalyst or as part of the explanation of an assignment or posted on the wall. Perhaps Cynthia Lee-Klawender had a most innovative way: the students first computer program was to output the course outcomes.

How will SLOs/AUOs be tied to budget?

The Program Review Annual Update as well as the comprehensive Program Review (occurring every six years) requests data on PLO and SLO assessments to corroborate need for sources such as materials, faculty and staff.

Do we have to sample every section of a course when we are assessing our SLOs?

The rule of thumb is to assess approximately 25% of the number of students in the course per year. In order to make this sampling as meaningful as possible care must be given to choose a random sample that represents each category of student. For instance, in the sample a good practice is to choose an evening class and a distance learning class as well as a day class if this is applicable.

Many courses are taught only once each year or two. Thus, it is important to assess these each time they are taught.

Resources

Bloom's Taxonomy:

http://www.educationoasis.com/curriculum/LP/LP_PDF%20Word/blooms_tax_verbs.pdf

Retrieved August 10, 2011

Marcy Alan Craig, Cabrillo College

Byron Lily, De Anza College

Jeff Schinske

Forms may also be found at <http://www.DeAnza.edu/SLO> website.

FORMS

Forms may also be found at <http://www.DeAnza.edu/SLO> website

Program Level Outcome Assessment Plan

Department: _____

Division: _____

Program/Certificate/Degree: _____

Number of authors/participants: _____ Contact Person: _____

Instructions: For each program level outcome in this program indicate in which year you will collect course assessment data. To facilitate this, if using embedded assessments, list courses to assess for assessment of this PLO. During a five-year period, it is assumed that all outcomes will have been assessed. Comprehensive Review is scheduled for Spring 2014.

Name as DEPT_PLO_ProgramName.xls

Submit as e-mail attachment to outcomes@deanza.edu

Program Level Outcome Assessment Plan

2010-11

Program Level Outcomes	Courses to be assessed (eg PE21, PE22)	2010-11	2011-12	2012-13	2013-14

DE ANZA COLLEGE

Student Learning Outcomes (SLOs) Assessment Report

Mapping Program Level Outcomes to Institutional Core Competencies

(note: Tab to second worksheet for ICC key points)

Program Name:

Date:

Division (if applicable):

Program Contact Person:

Phone:

Attach additional pages as necessary.

ICC Number	Program Level Outcomes	Means of Assessment and Criteria for Success	Summary of Data Collected	Use of Results	Timeline for Program Modification

DE ANZA COLLEGE
Student Learning Outcomes (SLOs) Assessment Report
Mapping Program Level Outcomes to Strategic Initiatives

Program Name:		Date:		
_____		_____		
Division (if applicable):				

Program Contact Person:		Phone:		
_____		_____		

Attach additional pages as necessary.

Strategic Initiative Number	Program Level Outcomes	Means of Assessment and Criteria for Success	Summary of Data Collected	Use of Results	Timeline for Program Modification