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The Follow-Up Report

Writing Student Learning Outcomes (Institutional Assessment Guidelines Report)

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Revised 06-21-2007
Version 2: 05-31-2009



Institutional Assessment Guidelines: Writing Student Learning Outcomes

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The materials in this guideline have been collected to assist you in writing student learning outcomes for your courses, programs, departments, services, or other activities. They represent an overview of current approaches, techniques and best practices. Some of the materials have been adapted to be consistent with Brooks College and ACCJC policies, procedures and standardized terminology. For example, the terms “Outcomes” and “Objectives” are sometimes used to mean the same thing by different institutions or in different regions. But, the term objective has well established meanings and usage which are distinctively different than outcomes and which significantly predate the SLO movement in education. Thus, if the original source used objective to mean an outcome (as in “Student Performance Objective”), it has been changed to outcome, learning outcome or student learning outcome in this guide. When the original source used objective to mean one of the prior established meanings (as in “Course Objectives” or “Goals and Objectives”) the term was not changed.

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Characteristics of Good Student Learning Outcomes

Good Student Learning Outcomes:

- Use verbs that indicate how the student work can be observed (Use Bloom’s Taxonomy and associated Action Verbs)
- Focus on what the student should do, not what the instructor teaches
- Reflect what students should be able to do after a course ends, not simply what they do during the course
- MUST be measurable
- Usually can be assessed in more than one way
- Can be understood by someone outside the discipline

Developing a Good Student Learning Outcome:

- Specify an **observable behavior**
 - For Example: Students will be able to **write**...
- Specify the **object or product of that behavior**
 - For Example: Students will be able to write a **research paper**...
- Specify the **criterion or standard** which will be used
 - For Example: Students will be able to write a research paper **in the appropriate APA style**.
- Specify the **condition or terms** under which the behavior occurs

- For Example: **At the end of their field research**, students will be able to write a research paper in the appropriate APA style.

Good Student Learning Outcomes are specific:

- Avoid statements that are too broad or vague:
 - Will a student or a stranger know exactly what you mean?
 - Broad or vague outcomes cannot be measured or assessed
- The choice of **verb** you choose will help you focus on what you assess:
 - In the statement “Students will be able to **do** research”, the verb **do** is too vague.
 - Do you mean identify an appropriate research question, review the literature, establish hypotheses, use research technology, collect data, analyze data, interpret results, draw conclusions, recommend further research, or all of those?
- The following examples illustrate how more specific outcomes are easier to assess than broad, general, outcomes:
 - Example One:
 - **Broad Version:** Students will demonstrate knowledge of the history, literature and function of the theatre, including works from various periods and cultures.
 - **More Specific Version:** Students will be able to explain the theoretical bases of various dramatic genres and illustrate them with examples from plays of different eras.
 - **Even More Specific (with conditions):** During the senior dramatic literature course, the students will be able to explain the theoretical bases of various dramatic genres and illustrate them with examples from plays of different eras.
 - Example Two:
 - **Broad Version:** The student will be able to discuss philosophical questions.
 - **More Specific Version:** The student is able to develop relevant examples and to express the significance of philosophical questions.
 - Example Three:
 - **Broad Version:** Students will be able to think in an interdisciplinary manner.
 - **More Specific Version:** Asked to solve a problem in the student’s field, the student will be able to draw from theories, principles, and/or knowledge from other disciplines to help solve the problem.
 - Example Four:
 - **Broad Version:** Each student will be able to function as a team member.
 - **More Specific Version:** Each student will reflect upon his or her contributions to a team effort, ability to accept other team members as resources, and willingness to accept compromises if required to achieve a team goal.
 - Example Five:
 - **Broad Version:** Students will understand how to use technology effectively.
 - **More Specific Version:** Each student will be able to use word processing, spreadsheets, databases, and presentation graphics in preparing their final research project and report.

Source:

Skidmore College, Department of Assessment

http://www.skidmore.edu/administration/assessment/How_to_Write_Learning_Objectives.htm

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Three Step Method for Writing Student Learning Outcomes

Step One:

State the Course Goals in broad, narrative statements.

Step Two:

To link course goals to specific student learning outcomes, ask the following questions:

- What are the specific student behaviors, skills, or abilities would indicate this course goal is being achieved?
- What evidence tells you when students have met these goals – how do you know when they have "gotten" it?
- What would an outside audience (i.e. employer, certifying agency) need to see occur to know that your students are achieving the major goals you have set out for them - (what evidence needs to be present, what specific behavior needs to be visible)?

Step Three:

Write out specific student learning outcomes using action verbs (see the Brooks College assessment guide on Bloom's Taxonomy and Action Verbs). State the outcomes in terms of behaviors or skills which are **demonstrable or measurable**.

Stated outcomes should include the following characteristics:

- Use action words that specify definite, observable behaviors
- Use simple language
- Indicate an appropriate level of attainment
- Use vocabulary that completely defines the desired outcome
- Identify outcomes that are realistic and achievable
- Indicate outcomes that are assessable through one or more indicators

Source: Honolulu Community College

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Student Learning Outcomes versus Course Objectives

Student Learning Outcomes for the classroom describe the knowledge, skills, abilities or attitudes that a student can **demonstrate** by the end of your course.

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

When trying to define Student Learning Outcomes for a course, think of the big picture. SLOs:

- Describe the broadest goals for the class, ones that require **higher-level** thinking abilities.
- Require students to **synthesize** many discreet skills or areas of content.
- Ask them to then **produce** something - papers, projects, portfolios, demonstrations, performances, art works, exams etc. – that **applies** what they have learned.
- Require faculty to **evaluate** or **assess** the product to measure a student's achievement or mastery of the outcomes.

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.

Objectives	Outcomes
Objectives describe skills, tools or content that a student will master by the end of course.	Outcomes describe over-arching goals that a student will be able to demonstrate by the end of a course.
Objectives require the use of basic thinking skills such as knowledge, comprehension and application.	Outcomes require the use of higher level thinking skills such as analysis, synthesis and evaluation.
Objectives do not necessarily result in a product. Most often, objectives are synthesized or combined to produce something that measures an outcome.	Outcomes result in a product that can be measured and assessed.

Source: Cabrillo College, Student Learning Outcomes and Assessment in the Classroom: A Work Book
http://www.cabrillo.edu/services/pro/assess/assessweb/docs/ClassroomSLO_AssessmentWorkbook.pdf
http://www.cabrillo.edu/services/pro/assess/assessweb/docs/SLO_InstructionalPlanningAssessmentProcess.pdf

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Work Sheet for Writing Student Learning Outcomes

Course Code: Course Name	Revised By: Revision Date:
Outcome	Assessment
Write one (1) sentence that describes a major piece of knowledge, skill, ability or attitude that students can demonstrate by the end of the course	Specify which Major Assignment(s), Project(s) or test(s) are used to demonstrate or apply the outcome

Instructions:

- 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 (based on the course MCO/MCS).
- Describe what students will **do** - not content, activities or hours.
- Be **specific** (avoid vague verbs and broad generalizations).
- Use **action verbs** (see the Brooks College assessment guide on Bloom’s Taxonomy and Action Verbs).
- Be **clear** (write it in language that a student will understand).
- Make sure the outcome is **measurable** (something that can be assessed or tested).
- Be **realistic** (outcomes are norms rather than ideals).

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.

Tip: Keep the number of outcomes short – no more than four or five at most except if the outcomes of your courses are dictated by the requirements of outside accrediting bodies (such as CIDA for Interior Design). 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.

Warning: Be careful when describing or specifying 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?

Source: Adapted from Cabrillo College, Student Learning Outcomes and Assessment in the Classroom: A Work Book http://www.cabrillo.edu/services/pro/assess/assessweb/docs/ClassroomSLO_AssessmentWorkbook.pdf

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Sample Checklist for Writing Student Learning Outcomes

After you have written your SLOs, show them to other faculty - both within and outside of your discipline - to see if they are understandable and concise. Use the following checklist:

1. Have you used action verbs in describing your SLOs?
2. Is it written as an outcome rather than an objective?
 - Language indicates the BIG PICTURE rather than nuts and bolts
 - Describes what students can DO
 - Asks students to apply what they've learned by producing something
 - Addresses student competency rather than content coverage
3. Is the SLO appropriate for the course?
 - Matches the course catalog description, MCO and MCS
 - Represents a fundamental result of the course
 - Aligns with other courses in a sequence (if applicable)
 - Aligns with program and/or institutional outcomes
 - Represents appropriate collegiate level work

Source: Adapted from Cabrillo College, Student Learning Outcomes and Assessment in the Classroom: A Work Book http://www.cabrillo.edu/services/pro/assess/assessweb/docs/ClassroomSLO_AssessmentWorkbook.pdf

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S.M.A.R.T. Student Learning Outcomes

Several **SMART** acronyms are used by colleges when writing Student Learning Outcomes:

Good SLOs are SMART SLOs	
S	Specific
M	Measurable
A	Acceptable
R	Realistic
T	Targeted

Source: Morningside College

<http://www.morningside.edu/academics/research/assessment/documents/Writingstudentlearningoutcomes.pdf>

Write SMART	
S	Specific
M	Measurable
A	Attainable

R	Relevant and Results Oriented
T	Targeted to our Students

Source: Windward Community College <http://www.wcc.hawaii.edu/iec/PPT/IECFallconf.pps>
<http://www.wcc.hawaii.edu/iec/Forms/IECFallconf.pdf>

Write SMART SLOs	
S	Specific
M	Measurable
A	Achievable
R	Relevant
T	Timely

Source: Tidewater Community College <http://www.tcc.edu/welcome/collegeadmin/OIE/SOA/Terms.htm>

SMART Characteristics	
S	Specific

M	Measurable
A	Actionable
R	Relevant
T	Timed

Source: Central Texas College http://www.ctcd.edu/gep/documents/how_to_write_learning_outcomes2.pdf

SLOs Should Be SMART	
S	Specific
M	Measurable
A	Action-oriented
R	Reasonable
T	Time-specific

Source: University of North Carolina at Pembroke <http://www.uncp.edu/tlc/Assessment%20Primer.doc>

Think SMART when Writing SLOs	
S	Specific

M	Measurable
A	Aggressive but Attainable
R	Results-oriented
T	Time-bound

Source: University of Central Florida http://iaaweb.ucf.edu/assessment/support/acad_assess_handbook.pdf
http://oeas.ucf.edu/doc/SACS_COC_2005_Student_Outcomes_Solutions.ppt
<http://www.fctl.ucf.edu/assessment/SMART.html>

Think SMART for Program SLOs	
Specific	<ul style="list-style-type: none"> Define learning outcomes that are specific to your program. Include in clear and definite terms the expected abilities, knowledge, values and attitudes a student who graduates from your program is expected to have. Focus on intended outcomes that are critical to your program. When the data from the assessment process are known, these outcomes should create opportunity to make improvements in the program that is being offered to your students.
Measurable	<ul style="list-style-type: none"> The intended outcome should be one for which it is feasible to collect accurate and reliable data. Refer to Chapter 5 for a detailed list of direct and indirect methods of assessment. Consider your available resources (e.g., staff, technology, assessment support, institutional level surveys, etc.) in determining whether the collection of data for each student learning outcome is a reasonable expectation. Include more than one measurement method that can be used to demonstrate that the students in a particular program have achieved the expected outcomes of that program. The focus of Chapter 5 is on assessment techniques and methods that can be used.
Aggressive but Attainable	<p>“Don’t let the perfect divert you from what is possible.” When defining the learning outcomes and setting targets, use targets that will move you in the direction of your vision, but don’t try to “become perfect” all at once.</p> <p>The following is a collection of questions that might help you to formulate and define aggressive but attainable outcomes for your program.</p> <ul style="list-style-type: none"> How have the students’ experiences in the program contributed to their abilities, knowledge, values and attitudes? Ask: <ul style="list-style-type: none"> Cognitive skills: What does the student know? Performance skills: What does the student do? Affective skill: What does the student care about? What are the knowledge, abilities, values and attitudes expected of graduates

	<p>of the program?</p> <ul style="list-style-type: none"> • What would the "perfect" program look like in terms of outcomes? • What would a "good" program look like in terms of outcomes
Results-oriented	<ul style="list-style-type: none"> • Determine what standards are expected from students in your program. For some learning outcomes, you may want 100% of graduates to achieve them but realize that this expectation is unrealistic for other outcomes. • Or you may want to determine what proportions of your students achieve a specific level (e.g., 80% of graduates pass the written portion of the standardized test on the first attempt). If you have previously measured an outcome, it is helpful to use this as the baseline for setting a target for next year.
Time-bound	<ul style="list-style-type: none"> • When defining the outcomes, it is important to describe where you would like to be within a specified time period (e.g., 10% improvement in exam scores within one year, 90% satisfaction rating for next year, and 10% improvement in student communication performance within two years).

Source: University of Central Florida http://iaaweb.ucf.edu/assessment/support/acad_assess_handbook.pdf

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Best practices in writing student learning outcomes

1. The SLOs are specific to the program they are associated with.
2. The SLOs focus on what is critical to the program.
3. The SLOs describe the knowledge, skills and dispositions that students are expected to gain as a result of their completion of the program. Example: "English graduates are able to..." vs. "The English program provides students with..." The focus is on what students should achieve and not on what faculty is going to do or what the program offers.
4. The SLOs are clear and understandable to both faculty and students.
5. The SLOs are written to an appropriate level of specificity while still allowing a certain amount interpretation leeway so that faculty members can reach consensus.
 - o Example: "English graduates are able to critique a brief draft essay pointing out the grammatical, spelling and punctuation errors and offer appropriate suggestions for correction of deficiencies" vs. "English graduates know how to provide students with feedback on written essays". Generally, highly prescriptive curriculums have more specific outcomes while curriculums that allow students a lot of choice in how they meet the requirements usually use broader outcomes.
6. The SLOs use action verbs. It is better to use concrete verbs such as define, classify or formulate rather than vague verbs like understand or know. Otherwise, it may take more time for faculty to reach consensus about the criteria that need to be used to determine whether a student "knows" something. A table showing various verbs for knowledge, skills, and dispositions is available below.
7. The SLOs are realistic given the typical student who enters the program, the expected level of rigor in program courses, and the resources available to support student learning.

8. The SLOs are assessable. It should be feasible to measure the outcome.

Source: Morningside College

<http://www.morningside.edu/academics/research/assessment/documents/Writingstudentlearningoutcomes.pdf>

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ABCD Method for Writing Learning Outcomes

The Student Learning Outcomes Formula = A + B + C + D:

Letter	Component	Task	Example
A	Audience	Describes the targeted students in the course	1st year students in Integrated Problems
B	Behavior	Provides an action verb with content	Analyze critically and report clinical cases
C	Condition	Defines the requirement(s) needed to perform the task	In weekly small group sessions with Faculty
D	Degree	Gives the criteria for assessing performance	With clear supporting evidence

A = Audience = Who will perform the learning objective?

Identify the targeted audience by:

- Course: Title, Year, Session
- Student:
 - Year: 1st, 2nd, 3rd, 4th
 - Learner characteristics: **How do they encode, store and retrieve information:** Students encode, store and retrieve information by:
 - **Learning style:** They learn a behavior by:
 1. Interpreting theoretical symbols (words and numbers)
 2. Perceiving through their preferred senses
 3. Deriving meaning through their cultural codes
 4. Retaining through a specific method in their memory
 - **Learning experience:** They learn a behavior by:
 1. Interpreting the content through their previous academic, cultural and social knowledge
 2. Motivating their preferred interests to attend to the content

B = Behavior = What will they do?

Behavior = Action verb + content

- An action verb describes a performance. Verbs such as “know, understand, grasp and appreciate” do not meet this requirement.
- Cognitive Domain action verbs (Bloom’s Taxonomy)
 - The six levels of Bloom’s taxonomy:
 1. Knowledge: define, label, list, name, order, recognize, recall, label, memorize, reproduce, repeat
 2. Comprehension: classify, describe, discuss, explain, identify, indicate, locate, recognize, report, review, select, translate
 3. Application: apply, choose, demonstrate, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use
 4. Analysis: analyze, appraise, calculate, categorize, compare, contrast, diagram, differentiate, discriminate, distinguish, examine, test, question
 5. Synthesis: arrange, assemble, collect, compose, construct, create, design, formulate, manage, organize, plan, prepare, propose, write
 6. Evaluation: argue, assess, choose, defend, estimate, judge, predict, rate, score, select, support, value, evaluate

C = Conditions = What do they need to perform the learning objective?

Conditions = requirements for learning

- Text book
- Equipment (lab coat, stethoscope, microscope...)
- Setting (small group, clinical site, wet lab)
- Computer access

D = Degree = How well will they need to perform the learning objective?

Degree = the criteria for assessing performance

- Report 2 out three original literature sources
- Provide 20% of the research evidence

- Name the doctor who first diagnosed the illness (100% correct answer is often implied)
- List 5 internet sources

Source: Boston University School of Medicine

<http://www.bumc.bu.edu/www/busm/fd/pdf/WritingLearningObjectivesWebFD.pdf>

Another version of the ABCD Method:

Letter	Term	Questions	
A	Audience	WHO?	Who are your learners?
B	Behavior	WHAT?	What do you expect them to be able to do? This should be an overt, observable behavior, even if the actual behavior is covert or mental in nature. If you can't see it, hear it, touch it, taste it, or smell it, you can't be sure your audience really learned it
C	Condition	HOW?	Under what circumstances or context will the learning occur? What will the student be given or already be expected to know to accomplish the learning?
D	Degree	HOW MUCH?	How much will be accomplished, how well will the behavior need to be performed, and to what level? Do you want total mastery (100%)? Do you want them to respond correctly 80% of the time (common), or 70%?

Objectives specify what learners will be able to do, or perform, to be considered competent. As such, they provide clear reasons for training.

Another way to view objectives is that they are goals redrafted to state performances in terms that are clearly tangible to the reader.

When writing objectives, be sure to describe the intended result of instruction rather than the process of instruction itself.

Source: University of North Carolina, Greensboro; Assessment Skills and Knowledge: Tools You Can Use; March 2006; Vol. 1: Issue 3. <http://assessment.uncg.edu/March.pdf>

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Six Step Method for Writing Student Learning Outcomes

1. Identify the major topics of a course.

- Think about the big picture of what the students are expected to learn from the course.
- Consult the Master Course Outline and catalog course description

2. Classify the outcome: focus on student behavior.

When writing learning outcomes, think about what you want students to be able to do as a result of completing the course. Use the following three domains of educational activities from Bloom's taxonomy:

- Thinking, knowledge (cognitive domain)
- Manual or physical skills (psychomotor domain)
- Attitudes, values (affective domain)

3. Identify the level of learning required of the student.

Within each appropriate domain, identify the level of learning required of the student. Use the six levels of learning from Bloom's taxonomy:

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

4. Choose a specific action verb for each outcome.

This step will insure that:

1. the outcome is specific, and
2. the outcome helps identify the method of assessment.

Note:

If the outcome is written for an introductory course or a survey course, you may think that most of the learning outcomes would be only at a knowledge, comprehension or application levels of learning.

However, you can still strive for higher levels of learning for your students.

5. Decide how you will measure the achievement of the outcome.

- When assessing the extent to which the learning outcomes have been achieved, a variety of methods should be used. Note: Grades alone do not provide adequate feedback to students' performance because grades represent overall competency of students and do not identify strengths and weaknesses on specific learning outcomes. However, if the grading system is tied to a rubric, it can be a useful tool to identify areas for improvement that should be addressed.

- Consider the end result you have in mind and the way in which you can document that the end result was achieved for each outcome. Design different assessment activities that will allow students to demonstrate their learning in ways that reflect the real world.

6. State success criteria.

The learning outcome statement should include the ultimate level of success criteria, for example:

- “With 90% accuracy”
- “Using at least 3 of the 5...”
- “Critiquing the ten features of...”
- “By supporting a reasonable hypothesis of...”

Source: Central Texas College http://www.ctcd.edu/gep/documents/how_to_write_learning_outcomes2.pdf

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Functions of Student Learning Outcomes

Learning outcomes articulate what the instructor or institution expect the students to be capable of doing after exposure to a course or service.

- SLOs should be an integral part of the syllabus.
- SLOs act as a guide for class activities, assignments, and exams.
- SLOs provide a focus for what and how content should be covered.
- SLOs form a framework for services that support student learning.
- SLOs provide a discussion nexus for faculty and an important starting place for course, department, and program learning outcomes.
- Sharply focused SLOs will indicate and direct the choice of valid and appropriate assessment methods.

Source: Adapted from the Curriculum Institute Summer 2005 SLOs Workshop
<http://www.asccc.org/Events/Curriculum/2005/Presentations/CurriculumSLOBook.doc>

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Sample Self Evaluation: What is your SLO capability?

On a scale of 1-5 (where 5 is very capable and 1 is not capable) rate your present ability.

Student Learning Outcomes Capability Self Evaluation		
Skill Set	Score (1-5)	Notes about concerns or thoughts you have about this skill set.
Ability to participate in and initiate dialogue about SLOs		
Ability to create and critique SLOs		
Ability to discuss criteria for good SLOs and the link between SLOs and assessment		
Ability to describe assessment processes that validate student learning		
Ability to differentiate between goals objectives and student learning outcomes.		
Ability to explore the relationships within a program for assessing and evaluating SLOs		

Source: Adapted from the Curriculum Institute Summer 2005 SLOs Workshop
<http://www.asccc.org/Events/Curriculum/2005/Presentations/CurriculumSLOBook.doc>

12 Sample Student Learning Outcomes Check List

Student Learning Outcomes Checklist	Yes	No
Do the SLOs include active verbs?	<input type="checkbox"/>	<input type="checkbox"/>
Do the SLOs suggest or identify an assessment?	<input type="checkbox"/>	<input type="checkbox"/>
Do the SLOs address the expected level of learning for the course using Bloom’s Taxonomy as a guideline?	<input type="checkbox"/>	<input type="checkbox"/>
Do the SLOs address more than one domain (cognitive,	<input type="checkbox"/>	<input type="checkbox"/>

psychomotor, and affective)?		
Are the SLOs written as outcomes rather than as objectives? <ul style="list-style-type: none"> • Language indicates an important overarching concept versus small lesson or chapter objectives. • Outcomes address what a student will be able to do at the completion of the course. • SLOs address student competency rather than content coverage. 	<input type="checkbox"/>	<input type="checkbox"/>
Are the SLOs appropriate for the course? <ul style="list-style-type: none"> • 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 	<input type="checkbox"/>	<input type="checkbox"/>
Will students understand the SLOs?	<input type="checkbox"/>	<input type="checkbox"/>
Comments or suggestions:		

Source: Adapted from the Curriculum Institute Summer 2005 SLOs Workshop
<http://www.asccc.org/Events/Curriculum/2005/Presentations/CurriculumSLOBook.doc>

13 Sample Instructions for Writing Student Learning Outcomes

Creating student learning outcomes for your degree or service program is a process. Some programs have found the following steps to be helpful:

Step 1

Start by having a faculty/staff meeting (including students and alumni, ideally) and brainstorm about what an ideal graduate would know, understand, and be able to do...and/or Consult the web site for your professional/disciplinary organization – many of them are developing student learning outcomes for degree or service programs at various levels.

Step 2

Agree on a first draft of a list of outcomes, understanding that they will be revised several times before becoming firm (or definitive) and that they will change over time for currency in the discipline or service area and changing needs and characteristics of students.

Step 3

List the student learning outcomes on every syllabus for the required courses in your degree program (or programs within your student service area), indicating which of them will be covered in each particular course (or service program).

Step 4

Gather feedback from students in each course or service program about how well they perceive that student learning outcomes were addressed.

Step 5

Assess student learning by designing assignments specifically geared to measure achievement of each of the outcomes that are designated for each course, degree program, or service area.

Step 6

In light of this data, meet (with faculty, staff, and students) at the end of each semester or academic year and revise the list of outcomes, teaching methods, curriculum, and/or program.

Step 7

Repeat the above steps regularly and as needed to improve student learning.

Source: Kansas State University

<http://www.k-state.edu/assessment/slo/instructions.htm>

(Originally derived from information collected at various conferences by Dr. Cia Verschelden, who tailored the information to fit the approach implemented at Kansas State University in the fall of 2002)

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A-B-C Formula for Writing Student Learning Outcomes

Step	Component	Example
A	Antecedent	After reading Chapter 8 in the text, the student will be able to...
B	Behavior	...summarize in writing the principle of supply and demand, giving an example not presented in the book...

C	Criterion	...with at least 90% accuracy.
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The antecedent then is the learning activity, the behavior is the skill or knowledge being demonstrated, and the criterion is the degree of acceptable performance.

In practice, the criterion is rarely explicitly stated in higher education outcomes since grading standards are set for the entire course and posted separately on the syllabus. A more useful way to write outcomes may be to add how you will measure success or, in other words, the assessment you will use to measure learning.

An example of this format would be:

By the end of this unit on Americans Divided, students will be able to explain the different ways Americans are divided by race, class, gender, and sexuality by writing a midterm paper that summarizes how these divisions are reflected in the movies.

Use the following template to help you write an appropriate learning outcome.

- By the end of this unit on
- **[Unit name]**
- students will be able to
- **[Action verb]**
- **[The knowledge, concept, rule, or skill you expect them to acquire]**
- by
- **[How they will apply their knowledge or skill, how you will assess their learning].**

Avoid broad, vague verbs such as understand, learn, and know. Make the outcome specific, check for action verbs and observable end products.

Get feedback from colleagues and students and rewrite to further clarify.

Source: Florida State University, Center for Teaching & Learning

<http://learningforlife.fsu.edu/ctl/explore/bestPractices/docs/LearningOutcomes.pdf>

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Sample Work Sheet for Writing Course-level Student Learning Outcomes

Work Sheet for Writing Course-level SLOs

Course Code:	Course Name:	
Is this a prerequisite for another course?	If so, which one?	
Is there a prerequisite for this course?	If so, which one?	
Please list below the course objectives from the course outline:		
Please list below the critical attitudes, skills, or knowledge the students will know or do when they leave the class (use action verbs):		
Now, phrase what you expect your students to know as student learning outcomes:		
1.		
2.		
3.		
4.		
5.		
6.		
List a few ways that you could assess (demonstrate or measure) each of the student learning outcomes you have proposed:		
1.		
2.		
3.		
4.		
5.		
6.		

Source: Adapted from Mendocino College

<http://atlantis.mendocino.edu/slot/Shared%20Documents/Handbook/HandbookPieces06.doc>

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Model to Develop Administrative Unit or Event Level SLOs

Direct your staff to do each of the following:

1. Select which of the following categories of learning are most connected to your unit, event, or activities:
 - Discipline/Program Specific
 - Higher Order Thinking Skills
 - College-Level Thinking Skills
 - General Education and Liberal Studies Goals

- Professional and Career Development Goals
 - Personal Growth and Development Goals
2. Examine your specific unit’s mission statement to extract learning outcome statements from it.
 3. Answer the following questions:
 - “What qualities and capabilities do you strive to foster in your students?”
 - “What are the most important things a student gains from working with you?”
 - “What specific intellectual qualities to students acquire from working with you?”
 4. Talk directly with students and ask them what they think they should get out of their **[insert specific unit, department, event or activity]** experiences.
 5. Brainstorm together to develop several possible answers to the following questions:
 - What should students gain from the work done by the unit/department?
 - What should students gain from the work I do?
 - What should students gain from the event/activity?
 6. Complete the following “learning outcomes matrix” to align specific activities with each possible learning outcome:

SLO Matrix	Outcome 1	Outcome 2	Outcome 3
Activity 1			
Activity 2			
Activity 3			

Source: Adapted from Syracuse University, “How to Create Learning Outcomes” by *Steve St. Onge, Talking Stick*, March 1999, Volume 16, Number 6 <http://orl.syr.edu/assessment/publications/Talking%20Stick%20learning%20outcomes.pdf>

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Developing Expected Student Outcomes Statements

Your program’s student outcomes statements should list specifically what you expect students to **do, think, or know** when they complete your program.

1. What are the **key concepts**, change points, capstone courses in your program?
2. What are the **three to five most important outcomes** statements on which you would concentrate?
3. Are your outcomes statements are consistent with your statement of purpose?
4. Are your outcomes statements specific enough to relate only to your program but not so specific that you need a bunch of them to describe your program?
5. Are your outcomes statements reasonable enough given the ability of your students?

6. Are your outcomes statements clear enough that people outside your discipline will know when students have accomplished them?
7. Knowledge is not enough. Have you made sure that higher-level thinking skills are included in your student outcome statements?

THEN:

1. Write down the methods or measures which address these expected outcomes.
2. Describe the procedures by which you plan to obtain the data necessary to address these outcomes.
3. Describe the student group(s) from which these data will be collected.
4. Identify where you plan to collect the data from/about these students.
5. Determine the best time during the academic year to obtain these data.
6. Will you need assistance from Institutional Research or computer services?
7. The time and cost of collecting and analyzing data should be a factor in deciding which of the proposed assessment methods are actually implemented.

Source: Tyler Junior College

http://research.tjc.edu/EFFECTIVENESS/Primer/02_Developing%20Program%20Outcomes%20Statements.pdf

18**M.A.T.U.R.E. Measures of Student Learning Outcomes****Measuring Student Learning Outcomes**

M	Matches	Directly related to the outcome it is trying to measure
A	Appropriate methods	Uses appropriate direct and indirect measures
T	Targets	Indicates desired level of performance

U	Useful	Measures help identify what to improve
R	Reliable	Based on tested, known methods
E	Effective and Efficient	Characterize the outcome concisely

Source: University of Central Florida http://oeas.ucf.edu/doc/SACS_COC_2005_Student_Outcomes_Solutions.ppt

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Fundamental Questions for Conversations on Student Learning

Five fundamental questions serve as prompts for conversations about student learning and the role of assessment in affirming and improving that learning:

1. **How are your stated student learning outcomes appropriate to your mission, programs, and degrees?**
2. **What evidence do you have that students achieve your stated learning outcomes?**
3. **In what ways do you analyze and use evidence of student learning?**
4. **How do you ensure shared responsibility for assessment of student learning?**
5. **How do you evaluate and improve the effectiveness of your efforts to assess and improve student learning?**

In using these questions, an organization should ground its conversations in its distinct mission, context, commitments, goals and intended outcomes for student learning. In addition to informing ongoing improvement in student learning, these conversations will assist organizations and peer reviewers in discerning evidence for the Criteria and Core components.

The fundamental questions and the conversations they prompt are intended to support a strategy of inquiry into student learning. Further, the questions are intended to support this strategy of inquiry, built on principles of good practice, as a participative and iterative process that:

- Provides information regarding student learning,
- Engages stakeholders in analyzing and using information on student learning to confirm and improve teaching and learning,
- Produces evidence that confirms achievement of intended student learning outcomes, and

- Guides broader educational and organizational improvement

In other words, organizations assess student learning in meaningful, useful, and workable ways to evaluate how they are achieving their commitments and to act on the results in ways that advance student learning and improve educational quality. Effective assessment of student learning is a matter of commitment, not a matter of compliance.

Source: Higher Learning Commission, North Central Association of Colleges and Schools

<http://www.ncahlc.org/download/AssessStuLrngApril.pdf>

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How to Distinguish Between Objectives and SLOs

One way to understand the distinction between objectives and SLOs is to understand how they are related to each other. While course objectives are the input, outcome(s) are the output. Instructors and staff provide whichever discrete skills, tools and/or content which are needed for students to fulfill the outcome(s) (the "input"). Conversely, student learning outcomes describe what students can DO with the aforementioned to demonstrate proficiency (the "output"). Note the shift in orientation from the instructors and staff "inputting" to the students "outputting."

Consider the following example from a Bakersfield College Nutrition course. What differences do you note?

Course Objectives:

- Review nutritional recommendations and components.
- Discuss differences in nutritional requirements associated with sex, age, and activity.
- Describe causes and consequences of nutritional problems.
- Explain complications of underlying physiologic conditions (e.g. diabetes & malabsorption).
- Identify key factors involved in correcting nutritional behaviors.
- Describe resources and strategies to treat nutritional disorders.

Course SLO

Upon completion of this nutrition course, students will be able to analyze a documented nutritional problem, determine a strategy to correct the problem, and draft a nutritional policy addressing the broader scope of the problem.

Note that the course objectives make explicit what the teacher will provide to enable students to fulfill the outcome, breaking down the process into manageable stages. On the other hand, the SLO shifts to the students' perspective and identifies what they should be able to DO with that knowledge. The SLO requires students to employ higher level thinking that integrates the content and activities. In sum, objectives can be thought of as the input and SLOs the output, with students applying all they have learned.

Another way of thinking of SLOs is they are on a "macro" level. When articulating student learning outcomes, think of the big picture. As such, SLO(s):

- Are broad in scope and require **higher level** thinking;
- Require students to **synthesize** many discrete skills or areas of content;
- Ask students to **produce** something-- papers, projects, portfolios, demonstrations, performances, art work, exams, etc.-- that applies what they have learned;
- Require faculty to **evaluate** or **assess** the product to measure students' achievement or mastery of the outcomes.

On the other hand, objectives are on a more microscopic level, describing discrete skills, tools, and content. 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. In sum, consider the distinctions described in the following table:

Objectives	Outcome(s)
Objectives describe skills, tools, and/or content (nuts and bolts) that enable a student to fulfill the outcome(s)	Outcome(s) describe overarching product(s) that students will generate by applying the skills, tools, or content.
Objectives require the use of less sophisticated tasks such as comprehension or replication.	Outcome(s) require the use of higher level thinking such as analysis, synthesis, and evaluation in order to demonstrate students' ability to apply the skills, tools, and/or content in authentic contexts for learning.
Objectives may be impossible to assess because they can often be numerous, specific, and detailed.	Outcome(s) are assessable; they result in product(s) that can be observed as a behavior, attitude, skill, or discrete usable knowledge and can be evaluated against criteria.

Source: "The Skyline College SLOAC Framework: An Implementation Guide for the Student Learning Outcomes and Assessment Cycle: Beta Version," Skyline College SLOAC Committee: Fall 2005.

<http://www.smccd.edu/accounts/skysloac/Framework%20Beta%20Version2.pdf>

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Two Approaches to Writing SLOs

Skyline College suggests two possible approaches to crafting your SLOs, though some faculty and staff have found that the two approaches complement each other and can be combined.

Major Assignments or Activities Approach:

A good place to start is to look at your major assignments or activities. Major assignments are culminating experiences, a synthesis of all of the minor assignments or activities that students completed. Think of the major assignments as being “the building” and the minor assignments as being “building blocks”—the skills, tools, content, opportunities for practice, etc. In the left column, list all of your major assignments for the course or service, and describe what students will do to demonstrate their understanding—not just content, activities or hours. What is the primary purpose of each assignment? What are the students expected to produce as a result of each assignment? These are the products or demonstrations of your outcomes. Then in the right column, describe *what* the students are being asked to demonstrate in this assignment; note that sometimes multiple assignments will have a SLO in common. Depending on the number of outcomes, each sentence should describe each major knowledge, skill, ability or attitude that a student will have gained by the end of your class.

Major Assignments or Activities Approach	
Major Assignments, Projects, or Tests and their Rationale	Outcome Knowledge Skill/Ability or Attitude that a Student Can Demonstrate upon Completion of a Course or Program

Objectives Approach:

Another approach to writing the SLOs is to draw from the specific objectives of the existing course outline or service, and to a lesser extent the assignments, activities and evaluation of student performance sections. Your objectives state what skills, tools, and/or content you'll provide; if said objectives are the "building blocks," what do you want them to "construct" in order to demonstrate competence? Try to categorize them according to the larger purpose that they will serve. By tying these objectives to something students will produce and an evaluation process, making them measurable in a given context, you have a quantifiable method of assessing whether a student has fulfilled the SLO.

Objectives Approach	
Related Objectives: Skills, Tools, and/or Content that Instructors Provide and their Rationale	Outcome: Knowledge Skill/Ability or Attitude that a Student Can Demonstrate upon Completion of a Course or Program

Source: “The Skyline College SLOAC Framework: An Implementation Guide for the Student Learning Outcomes and Assessment Cycle: Beta Version,” Skyline College SLOAC Committee: Fall 2005.
<http://www.smccd.edu/accounts/skysloac/Framework%20Beta%20Version2.pdf>

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Method for Aligning Assignments, Objectives and SLOs

Whichever method you use for writing your SLOs; course assignments, objectives, and SLOs have to be aligned with each other.

Start with the assignments. When critiquing an assignment in relation to student learning outcomes, faculty need to consider first the relevance of the assignment: does the assignment guide students toward achieving learning outcomes, and if so, how? Just as importantly, do the course objectives (as stated in the course outline) build a bridge to fulfilling the SLOs?

In the bigger picture, faculty will need to evaluate whether assignments align with SLOs for a particular class, but then also whether they align with other courses in a sequence (“introduce, practice or demonstrate” in terms of course level outcomes) and, finally, whether they coordinate with program and/or institutional outcomes. In this evaluative process, faculty may find that they eliminate assignments that do not guide students toward an outcome, as well as create assignments which better address the cognitive, psychomotor, and affective domains of Bloom’s Taxonomy in order to comprehensively identify and measure student learning.

In order to align assignments and activities with SLOs, you need to consider the following questions:

- What are the major assignments-- papers, projects, portfolios, demonstrations, performances, art work, exams, etc.-- that measure your outcomes?
- What revisions, if any, need to be made?
- Which objectives-- skills, tools, and/or content-- help students to successfully complete your major assignments?
- What revisions, if any, need to be made? Consider, for instance, if students are expected to demonstrate proficiency through an assignment yet have not been given adequate preparation.

As you complete these steps, remember that you are focusing on what students will DO, not necessarily what must be covered. Doing presupposes knowing, so of course time must be spent helping students to assimilate new knowledge. But using this approach, the organizing principle of your class is based on what students actually do and how they apply or demonstrate that knowledge, ultimately leading to mastery of the course outcomes.

Step One: Aligning Major Assignments with SLOs

Use the Major Assignments Worksheet or a variation of the worksheet to plot which of the course SLOs the major assignments fulfill. List horizontally the course's student learning outcomes; the general rule of thumb is that there should be no more than six SLOs. Then list vertically the major assignments that measure your outcome(s). Mark "X" if the assignment addresses the SLO.

Aligning Major Assignments with SLOs						
Assignments	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Step Two: Questions to Consider After Aligning Major Assignments with SLOs

Examining whether your assignments align with your outcomes is good classroom practice.

To do so, answer the following questions:

- Do my assignments provide students with an opportunity to demonstrate their mastery of the SLOs? Specifically, do any of the assignments fail to satisfy any of the SLOs? Cross out the assignments that need to be replaced with new assignments that will measure the SLOs.
- Or conversely, do the SLOs need to be revised to more accurately reflect the purpose(s) of the assignment(s)? Circle the SLOs that need to be further scrutinized.
- Do my assignments require that students demonstrate the kinds of knowledge, skills/abilities, and/or attitudes that I am actually grading?
- Though it is difficult, check once again to make sure that the matrix you've created is focused on the assignments rather than the content that is covered.

Step Three: Aligning Related Objectives with Major Assignments

Narrow your focus to the assignments that *do* align with your outcomes, and then identify the resources that each major assignment requires to be completed. In doing this, it is important to ask:

- What are the precise skills, tools and/or content (objectives) that students will need to learn in order to complete these assignments?

Use the following Activity Alignment Worksheet or a variation of the worksheet to plot which of the course SLOs each of the major assignments fulfills as well as the accompanying classroom activities.

Activity Alignment Worksheet (Aligning Assignments, SLOs and Objectives)
Brief Description of the Assignment
Which SLOs the Assignment Addresses
Objectives: Skills/Tools/Subject Materials Needed for Students to Complete the Assignment

Step Four: Questions to Consider After Aligning Objectives with Major Assignments

Looking at the charts for each of your major assignments, consider the following questions:

- Do my in-class activities, homework assignments, assigned reading and other exercises provide students the resources they need to successfully complete the assignment? Specifically, do I provide the necessary skills, tools, and/or content?
- Do my in-class activities, homework assignments, assigned reading and other exercises provide students adequate practice before the assignment is graded? If not, which need to be replaced?

This concept of "practice" is one of the key principles to using SLOs as a means to strengthen your teaching. The emphasis is on what students can DO with what they are learning rather than the knowledge itself. Exposing them to the course content without allowing them time to do something with it before they are evaluated on it will not lead to successful mastery of your course outcomes. Rather, students must practice the skills they are being evaluated on before that evaluation occurs. Secondly, students need feedback on what they've done. The National Research Council determined that timely, informative feedback facilitates practice and acquisition of proficiency of skills and deep learning. Such feedback can allow for formative improvement, not just summative judgment, to improve teaching and learning.

Source: Adapted from "The Skyline College SLOAC Framework: An Implementation Guide for the Student Learning Outcomes and Assessment Cycle: Beta Version," Skyline College SLOAC Committee: Fall 2005.

<http://www.smccd.edu/accounts/skysloac/Framework%20Beta%20Version2.pdf>