A Guidebook to Student Learning Outcomes and Administrative Unit Objectives

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I can no other answer make,
but thanks, and thanks.

- William Shakespeare

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All errors and omissions are the sole responsibility of the authors.

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PURPOSE

Three principal assessment efforts are currently under way at Mt. San Antonio College (Mt. SAC). These are:

- student learning outcomes (SLOs),
- administrative unit objectives (AUOs), and
- general education outcomes (GEOs)

This guidebook introduces the fundamentals of SLOs and AUOs. It begins with a brief overview of outcomes assessment and the context in which it exists. Then, it explores what SLOs and AUOs are, what they are for, and most importantly, practical strategies to develop, assess, and use them.

GEOs are statements that define the knowledge, skills, and perspectives acquired by students who satisfy the general education requirements. A GEO is a college-level outcome and a type of SLO. More information about this third type of assessment effort can be found at http://www.mtsac.edu/instruction/generaled/

A few overarching themes are woven throughout this guidebook:
1. Assessment will help you serve your students and clients more effectively;
2. All campus constituencies can and should engage in SLOs and/or AUOs; and
3. Assessment plays a central role in institutional effectiveness.

This guidebook was approved and adopted by the Academic Senate on September 18, 2008. It is the first attempt to develop a reference to assist with the development of SLOs and AUOs. Any feedback to improve the organization or content would be appreciated. Furthermore, to maintain currency and relevance in order to best serve a dynamic academic environment, the guidebook is subject to changes and revisions. It is a living document and any suggestions for modifications to the guidebook or general comments should be sent to the Office of Research and Institutional Effectiveness at Mt. SAC.

BACKGROUND

A Brief History

Mt. San Antonio College has been working with student learning outcomes and administrative unit objectives for many years. The efforts of a three-year project between 2004 and 2007, spearheaded by the SLO Implementation Team, resulted in many of the concepts and models explained in this guidebook. In spring 2008, the Academic Senate approved a plan and a timeline submitted by the Student Learning Outcomes Committee to assist with the application and integration of SLOs. The approved SLO plan and timeline can be found on the Academic Senate's website at http://www.mtsac.edu/administration/senates/academic/documents/SLOPlan.pdf

Introduction

Learning expectations are stated in the form of student learning outcomes (SLOs) and service expectations in the form of administrative unit objectives (AUOs). *SLOs are broad statements about what students will think, know, feel or be able to do as a result of an educational experience. AUOs are statements about either what clients will experience, receive or understand as a result of a given service or what the unit can provide, improve, increase or decrease.* In order to determine whether these expectations have been met, an assessment is performed.

Assessment is the continuous process of collecting, evaluating, and using information to determine if and how well performance matches learning or service expectations. For assessment to be truly effective, it must be meaningful, reflective, and self-regulated. The purpose of assessment is to use the results, positive or negative, to stimulate meaningful dialogue about how instruction and instructional and non-instructional services can be modified to engage students in the learning process and sustain institutional effectiveness. *Institutional effectiveness reflects how well the college is meeting its mission and goals.* The mission of Mt. SAC is "to welcome all students and to support them in achieving their personal, educational, and career goals in an environment of academic success." One of the ways that the college can determine if and how well its mission has been achieved is through the process of assessment, specifically through SLOs and AUOs.

Discussions borne out of assessment efforts are intended to address student needs and service issues, **not to evaluate the individual faculty members or the departments**.

In short, assessment of SLOs aims to provide data to fuel conversations about what is taught, how it's taught, and how students will best benefit from their educational experiences. Assessment of AUOs encourages conversations about what services are provided, how they are provided, and how clients will best benefit from the services. Conversations surrounding SLOs and AUOs aim to address the following questions:

- What were your expectations regarding student learning or client experiences?
- How did the actual student performances/client responses compare to the expected outcomes/objectives for your course/program/service?
- Are improvements needed?
- What can be done to improve student learning, student success or client experiences?
- What types of resources are necessary to meet your learning or service expectations?

Though it has been presented in recent years against a backdrop of accountability, transparency, and accreditation, outcomes assessment is inherently a good practice for maximizing student learning and client experiences. It provides a systematic means to evaluate the effectiveness of a practice, a service, a department, and the institution. One noteworthy trend is the transition from a teaching-centered model to a learning-centered model. In other words, the focus has shifted from "What was covered in the course?" to "What did the students take away from the course?"

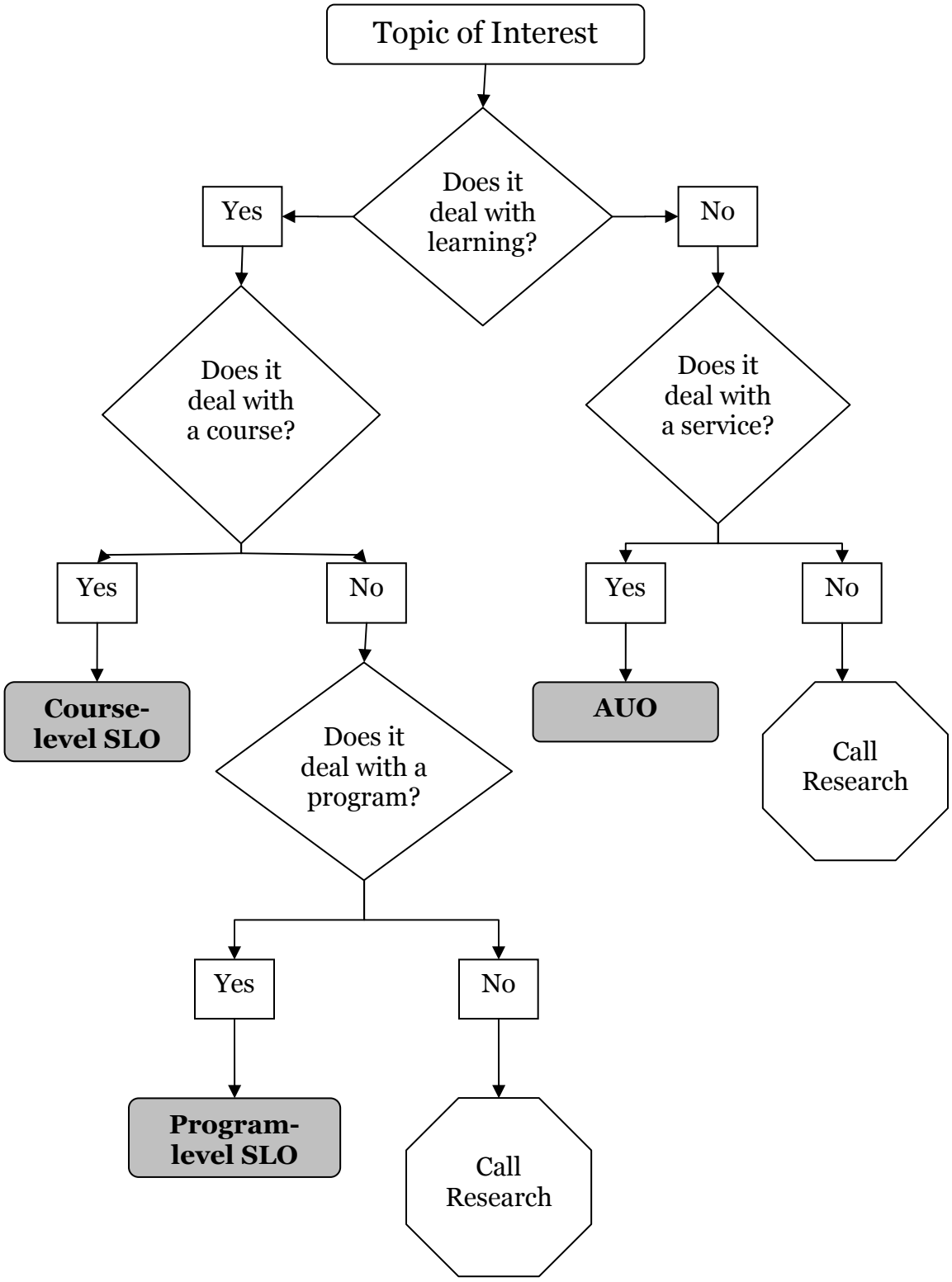
The **BEST** part is that you've been doing the majority of this all along!

When you make modifications to your teaching based on how students fared on an assignment or when you incorporate internal changes based on how the campus is using your services, you are engaging in data-driven decision making. The next step is to **articulate** it!

Whether you are highlighting the achievements or discovering areas of opportunities and growth, it is important to share these with your students, your clients, and the campus at large. In order for the campus to evaluate its overall effectiveness as an institution, it is helpful to use a framework with consistent language and a common model for documentation. That is where the SLOs and AUOs come in. It is essential to keep in mind that SLOs and AUOs are <u>self-regulated</u>. You have the greatest knowledge on what your students and clients need and what efforts are necessary to deliver the optimal educational and service experience.

SLO OR AUO?

The following diagram aims to help you and your department decide the type of assessment in which to engage.



STUDENT LEARNING OUTCOMES

What is a student learning outcome?

A student learning outcome (SLO) is a statement about what **a student** will think, know, feel or be able to do as a result of **an educational experience**.

A student can be anyone engaged in **learning**, such as:
- a Mt. SAC student
- a faculty member
- a staff member
- a parent
- a high school student

An educational experience can include the following:
- a topic/unit
- a course
- a program
- a certificate/degree

SLOs are statements that identify specific knowledge, skills, abilities, or attitudes that students will demonstrate as a result of engaging in a particular learning experience. Most traditionally, SLOs are developed for the instruction areas. For example, the Photographics department has the following SLO: "Students completing Beginning Photography will know two core skills of exposure control (i.e. f/stop and shutter control." SLOs can also include service or non-instructional areas that still provide educational experiences for students. For example, the Financial Aid Office has the following SLO: "Students attending introductory scholarship workshops will identify the steps in the application process for the Mt. SAC Scholarship Program."

Designed and developed by faculty, the assessment of SLOs within the instruction area provides evidence that learning has occurred as a result of a specific educational experience such as a class topic, course, program, or award (e.g. a certificate, degree). SLOs within in the service or non-instructional areas are designed and developed by the staff and manager(s) and serve a similar purpose. SLOs must be measurable so that the difference between the expected achievement and the actual achievement can be identified and narrowed. Even though outcomes may be defined for a course, program or service, they are fluid and revisable. Examples demonstrating the diversity of SLOs are listed at the end of this section.

It is imperative to note here that faculty members have the responsibility for SLOs and thus, the authority on how they will be developed and assessed.

SLOs are connected to planning (see section on Planning for Institutional Effectiveness). The outcome statement is developed and assessed. Then, the data is collected, summarized, and analyzed. From the results, the faculty and/or the department plan

for improvement. Improvements could include curriculum revisions, increased faculty/staff training, equipment purchases, software modifications, and implementation of new teaching techniques.

The section on the Eight-Step Process will outline and detail how to assess an SLO and an AUO. The Toolbox in **Appendix A** provides some assessment examples.

SLOs, grades, and measurable objectives

SLOs differ from other learning indicators such as grades and measurable objectives. Grades measure the overall performance by an individual student in a certain course. It is very difficult to trace back the learning of specific skills from a general grade. For example, if a student gets a "B" in the course, it is not possible (without checking the student records) to determine which topics within the course were grasped well by the student. Faculty members teaching various sections of a particular course could vary in their combinations of these factors to produce grades. Grades provide a very succinct way to summarize how the student fared overall in a course but are not able to illustrate the students' level of understanding and acquisition of specific skills.

Grades are student-specific. In contrast, SLOs are meant to be skill-specific. Instead of how many students received 'A's and 'B's in the course, how many of them were able to demonstrate a specific skill central to the course? SLOs focus on how students perform in particular skills that are taught in a course instead of the overall performance. Moreover, they are intended to determine what students would get out of a course regardless of which section they selected or which faculty member they had. Thus, the SLO should be at the course-level (ex. English 1A SLO) not at the classroom- or section-level (ex. English 1A Reference # 9999999 SLO).

As demonstrated in *Table 1,* although Student 2 and Student 3 received the same overall grade, they varied in their performance on the assignments. Furthermore, the variety of overall grades obscures the fact that all of the students fared poorly on Assignment 2. Thus, SLOs can be described as statements about the skills exhibited through the various major assignments within a course (i.e., looking at the results vertically instead of horizontally). The Toolbox in **Appendix A** provides some methods that can be used for assessment.

Table 1. Assignment Grade by Overall Course Grade

	Assignment 1	Assignment 2	Assignment 3	Overall Grade
Student 1	A	D	A	A
Student 2	C	D	A	B
Student 3	A	F	C	B
Student 4	B	D	F	D

SLOs also differ from measurable objectives. Measurable objectives encompass the content of a course and are expressed in statements about the material that will be taught in a course. SLOs build on the course's measurable objectives but rather than

focus on course content, they focus on the learning that will occur as a result of taking the course. At Mt. SAC, in some cases, measurable objectives are framed very similarly to SLOs and can be easily converted. This is especially true in the case of vocational courses which already have skill requirements. In other cases, measurable objectives link to discrete, basic, and singular skills. Thus, multiple measurable objectives can be linked together to create a broader, higher-level student learning outcome. SLOs can also be developed to measure learning that has accompanied the content, such as confidence or thinking like a biologist, even if it is not a measurable objective.

SLOs can also be incorporated into your syllabus and in the course/program descriptions. Through this process of transparency, the students will benefit from knowing what outcome to expect (as well as the associated criteria) as a result of the education experience. Furthermore, they will be more understanding of the grading system in the course since the criteria for measuring their performance will be shared. In addition to students, the public also has an opportunity to see the expectations set for a course or program.

Examples: Course-level SLOs

- **Spanish**: Spanish 1 students will be able to demonstrate their reading comprehension of a paragraph containing Spanish 1 level vocabulary and grammar.
- **Biology**: Microbiology 22 students are able to demonstrate aseptic techniques that are appropriate for the allied health fields.
- **Air Conditioning and Refrigeration**: Air Conditioning 20 course completers will handle and transfer refrigerants.
- **Nutrition & Food**: NF 10 students will evaluate the nutritional adequacy of their present diet. This analysis will be based on governmental or NAS (National Academy of Sciences) standards.
- **Office Technology**: COMP 1B students will be able to touch type effectively.
- **Music**: Music 16 students will be able to:
  - perform technical exercises with competence
  - perform the 12 major scales on their instrument.
- **Math**: Math 71/71B students will
  - feel more confident in their ability to solve word problems.
- **ESL**: ESL Students exiting Level 5 will be able to report orally the results of an interview with a native English speaker in the community or the workplace.
- **Communications**: Speech 1A students will be able to perform basic speech delivery skills.
- **Natural Sciences**: Anatomy 35 students will be able to:
  1. Master Human Muscle Anatomy including the name, location, and attachments (origin and insertion) of muscles
  2. Master the pathway of sequential structures in humans such as blood vessels, nerves, respiratory and urinary passages
  3. Master the anatomy of the Human Skeletal System including names of bones, whether a "paired" bone is from the left or right side of the body, and diagnostic features of bones

- **Business**: BUSC 1A Students will:
  - understand the use of Fiscal Policy
  - understand the use of Monetary Policy

Examples: Program-level SLOs

- **Fashion Merchandising and Design**: Core Unit Completers of Fashion Merchandising and Design will fabricate garments of their own design.
- **Fire Technology**: Graduates of the Fire Protection program will be technically proficient in the inspection of building fire protection systems.
- **Computer Information Systems**: Level 1 Computer and Networking Technology program completers will be prepared to take the A+ Certification Exam.
- **Agriculture**: Registered Veterinary Technician program completers will demonstrate professional behavior in the field.
- **Nursing**: Nursing Program completers will score above the national average on the Comprehensive Predictor Exam.
- **Math**: Students in developmental math courses will feel more confident in their ability to solve word problems.
- **Aviation Science**: Aviation Science program completers will prepare for the FAA Academy.
- **Radiology**: Radiology program completers will competently perform radiographic procedures as entry-level technologists.
- **Air Conditioning and Refrigeration**: AIRC program completers will gain employment in their fields of study.
- **Medical Services**: Paramedic program completers will be prepared for hospital internships.
- **Histotechnology**: Graduates will successfully pass the Histotechnician American Society for Clinical Pathology (ASCP) exams.

Examples: SLOs from Service Units

- **Financial Aid Office**: Students attending scholarship personal statement/essay workshops will list the methods used for constructing a competitive scholarship personal statement/essay for the Mt. SAC Scholarship Program.
- **Student Learning Outcomes Team**: As a result of attending a POD training session, faculty members will be able to develop a student learning outcome statement and assessment plan for their course(s).
- **Technology and Health Division Office**: Programs in the Technology and Health Division will create correctly formatted SLOs for assessment.
- **Student Life**: AS Student Officers will increase their leadership knowledge and skills confidence after completing the one-day mandatory officer training.

ADMINISTRATIVE UNIT OBJECTIVES

What is an administrative unit objective?

An administrative unit objective (AUO) is a statement about what **a client** will *experience, receive, or understand* as a result of **a given service**.

A client can be anyone receiving a service, such as:
- a Mt. SAC student
- a faculty member
- a staff member
- a parent
- a high school student

A service can include the following:
- training sessions
- development of facilities
- professional development

AUOs are statements that identify client responses to a certain service that your department provides. They identify activities that are critical and central to the unit. Designed and developed by your department, these statements provide evidence that positive client reaction has occurred as a result of a specific service. These statements are very similar to SLOs in that they examine the result of an experience but AUOs deal exclusively with non-instructional services provided to students or other members of the campus community. The Printing Services department has the following AUO: "Faculty will experience improved access to Printing Services by making it easy to submit print jobs via the web."

It is imperative to note here that your department (faculty, managers and classified staff) has the responsibility for AUOs and thus, has the authority on how they will be designed, developed, and assessed.

AUOs are connected to planning (see section on Planning and Institutional Effectiveness [PIE]). The objective is developed and assessed. Then, the data is collected, summarized and analyzed. From the results, the unit plans for improvement. Improvements could include increased staff development, equipment purchases, software modifications, and process development.

AUOs are generally tied to the non-instructional areas of student support services but can include any unit, office, or department that provides any service to any individuals (whether they are students are not) in order to directly or indirectly maximize student success.

The Eight-Step Process will outline and detail how to assess an AUO. The Toolbox in **Appendix A** provides some assessment methods. Of the many methods offered in the appendix, the following may be the most relevant for AUOs:

- Focus groups
- Surveys
- Pre-/Post- analysis
- Interviews

Examples: AUOs

- **ESL**: The Student Data Team (ESL) will improve the percentage of complete data sets (intake, test, and update forms) required to report benchmark gains to CASAS (Federal Grant).
- **Library**: Patrons will be satisfied with the library facilities.
- **Nursing**: Employers will be satisfied with the educational preparation of Mt. SAC nursing graduates.
- **Food Services**: Dining Services will increase student usage of the Dining Services card.
- **Academic Technology Support Group**: The ATS department will invent in [their] employees through education and training leading to technical certification.
- **Admissions and Records**: The successful application, registration, fee payment and record maintenance of students are all critical elements of a student's success while attending Mt. SAC. Students will demonstrate an increased usage of technology through the provision of information and services to students regarding these functions showcasing the importance and ease of using current technology related to the services and programs we provide.
- **Bridge Program**: Students enrolled in two additional English clusters added to Summer Bridge 2008 will have an increase retention rate of 30% above a stand alone English 67 and 68 courses.
- **Career/Transfer Services**: Increase student, faculty and staff awareness of Career Placement and Transfer activities, events and services.
- **Center of Excellence**: Regional administrators and faculty members will be satisfied with the quality of information provided to them by the center.
- **College Information Services**: The CIS department will provide education and training for our employees.
- **Library & Learning Resources Division Office**: Improve communication between the Division office and departments within Division. Division staff will be satisfied with quality of communication.
- **Mailroom**: The Mail Services unit will provide timely and accurate mail services campus-wide.

PLANNING FOR INSTITUTIONAL EFFECTIVENESS (PIE)

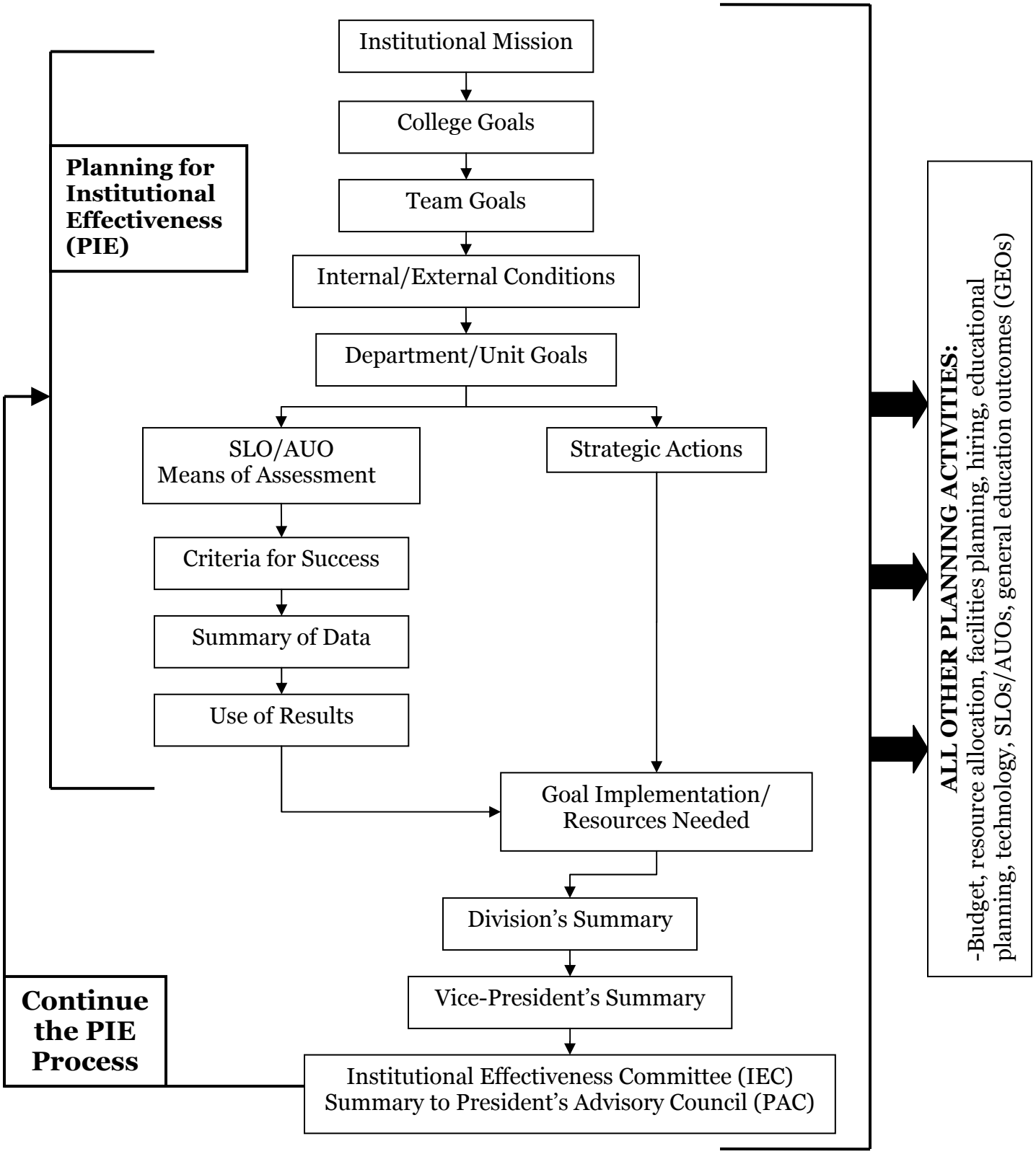
A college can measure its institutional effectiveness through a continuous cycle of planning, assessing, and improving set in motion by measurable college goals (designed for problem solving or quality improvement) that are derived from the college mission. Based on the college's mission statement, planning involves deciding the college's focus/ priorities, setting institutional goals, developing institutional/ departmental strategies, outlining tasks and creating schedules to measure if the goals are reached, evaluating the outcome and doing it all again (i.e., think, plan, do, and evaluate cycle). In order to evaluate a college's effectiveness, it is important to start at the unit/office/department level first. The Planning for Institutional Effectiveness (PIE) process at Mt. SAC is used to document the efforts at various levels (i.e. unit/office/department, division, area). The planning cycle is demonstrated in the following diagram:

Assessment efforts including SLOs and AUOs can be documented in accreditation reports as well as the PIE process. Each unit, office, and department on campus completes this annual document to record the environmental conditions, short-term and long-term goals, assessment efforts, and resources required for the unit/office/department to function as efficiently and effectively as possible. Though it is submitted once a year during the spring, it is intended to be a living document that should be continuously referred to, modified, and updated. It can be completed electronically through a software program called TracDat and thus, the electronic document is referred to as e-PIE.

The next page displays the Institutional Planning Framework. It displays the components of the PIE process and the connection between the PIE process and campus decisions. When a unit, office, or department completes its PIE process, the document is submitted to the Vice-President. In the Instructional Area, it is first submitted to the relevant Division. The Vice-President, in turn, summarizes all of the PIE documents within his/her area to create an Area PIE summary. The Institutional Effectiveness Committee then creates a final PIE summary for the campus and presents it to the President's Advisory Council. The Council decides how to use this information in its process of making campus-wide decisions such as hiring, resource allocation, etc.

The e-PIE manual can be obtained through the Information Technology (IT) department. The 2007-08 PIE paper version can be found at http://inside.mtsac.edu/organization/committees/iec/docs/2007-08_pie_form.doc The 2007-08 Final PIE Summary created by the Institutional Effectiveness Committee will be available on its webpage by the end of fall 2008.

INSTITUTIONAL PLANNING FRAMEWORK



THE EIGHT-STEP PROCESS FOR SLOS AND AUOS

Getting started is the hardest part but just remember that you have been doing a portion of this all along. The Eight-Step Process outlined below provides a clear and tangible way to articulate your efforts. The intention of the process is to provide a step-by-step layout of how to develop SLOs and AUOs, how to assess them, what to do with the data, and how to use the findings. It also explains how to document your efforts with the model that is used by the campus. By establishing and maintaining a documentation process, it is easier for you and your department to see what work has been done, how it went, and what actions need to be taken to meet the goals and needs of your department.

Developing and assessing SLOs and AUOs is a process and the following steps are intended to serve as a set of guidelines. It is imperative to look at the culture within your department or program to determine how this process will best be implemented. The Eight-Step Process for developing SLOs and AUOs is listed below:

STEP		DESCRIPTION
1.	**Preliminary Discussion**	Schedule a faculty/staff meeting to brainstorm ideas for outcomes and/or objectives.
2.	**SLO/AUO Statements**	Develop a list of measurable SLO/AUO statements.
3.	**Assessment Plan**	Develop an assessment plan for each SLO/AUO.
4.	**Data Collection**	Assess student learning or client experiences.
5.	**Data Analysis and Summary**	Aggregate and analyze the data.
6.	**Closing the Loop**	Determine ways to use the data and make applicable revisions to the curriculum, departmental processes, and the outcomes/objectives.
7.	**Documentation**	Incorporate your SLO/AUO process into your electronic Planning for Institutional Effectiveness.
8.	**Continuous Cycle**	Repeat the process continuously focusing on various SLOs/AUOs as relevant.

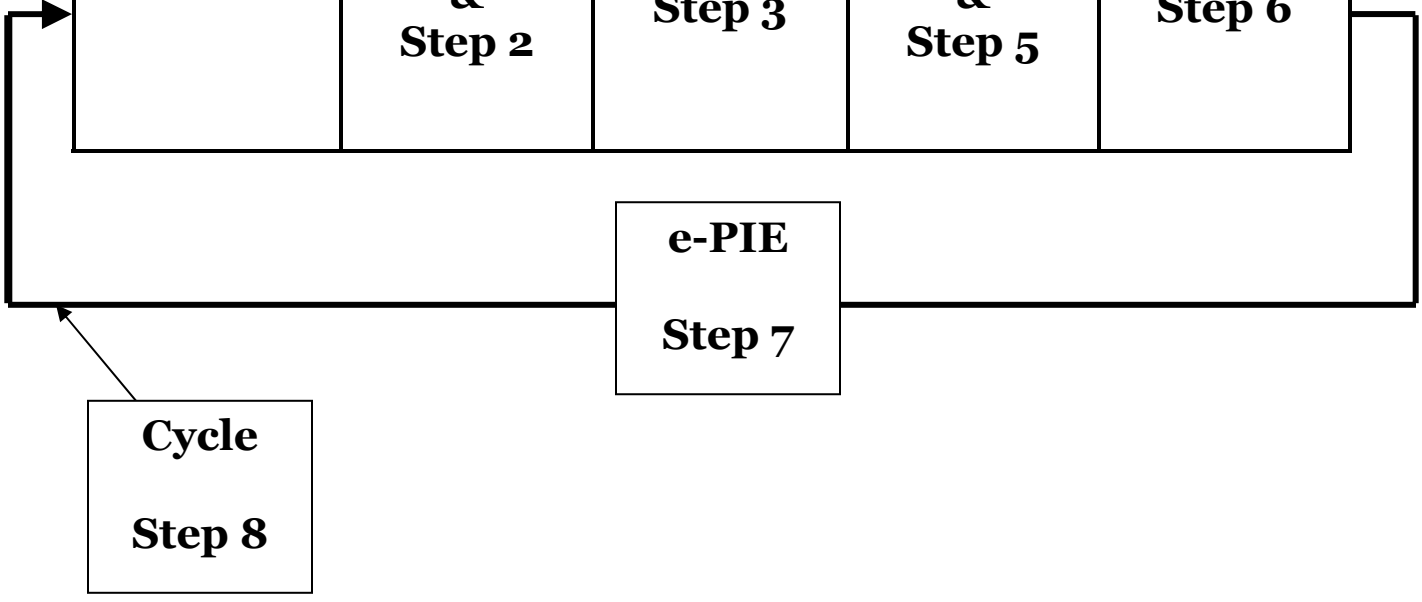
No matter your final results, "Success is not final; failure is not fatal; it is the courage to continue that counts." - Winston Churchill.

The Nichols' 5-Column Model

Mt. SAC has used the Nichols' 5-column model (Table 2 and **Appendix B**) to provide a framework for developing and assessing SLOs and AUOs. The model has also been incorporated into the college's Planning for Institutional Effectiveness (PIE) program review process. Many of these steps correspond directly to columns in the model. The next table displays the correspondence. The column headings denote the five columns of the Nichols' 5-Column Model and the steps relate to the Eight-Step Process.

Table 2. Nichols' 5-column model

COLUMN 1: Mission/Goals	**COLUMN 2: Intended Outcomes/ Objectives**	**COLUMN 3: Means of Assessment/ Criteria for Success**	**COLUMN 4: Summary of Data**	**COLUMN 5: Use of Results**
The mission and applicable goal(s) of the program, department or administrative unit.	What will the student think, feel, know or be able to do as a result of a given educational experience?	What are the criteria for success? What tools will be used to establish and measure success?	Summarize the findings. How close were the results to the criteria for success?	What do the data tell us about our process? What, if anything, do we need to do to our course, program or department to improve? What resources are necessary?
	Step 1 & Step 2	**Step 3**	**Step 4 & Step 5**	**Step 6**



Step 1: Preliminary Discussion

Schedule a faculty/staff meeting to brainstorm ideas for outcomes and/or objectives.

For SLOs, the meeting should include faculty members teaching the course or program to be assessed. When developing SLOs, the focus is to identify what the students should be able to *know, think, feel or do* with the central knowledge, skills, and abilities gained from a course or finishing the program.

For AUOs, staff and managers (and faculty members, where appropriate) should be included to brainstorm and identify what services will be selected for evaluation. When developing AUOs, the focus is on what the client *gains*, *experiences* or *receives* from a service.

Other individuals could be included as applicable such as the chair, manager, classified staff or advisory committee members. The focus of the meeting is to identify the central knowledge, skills, abilities, attitudes, or experience that a student/client would walk away with after taking a course or program or receiving a service.

Regardless of which outcome(s) or objective(s) you select as a group, make sure that they are relevant to your course/program/department. This can be confirmed by looking at your mission statement and/or your department's short-term and long-term goals. **Alignment** to your program or department goals is important and enables the process to be more logical and relevant.

There are many challenging points in the process that make abandoning the process seem attractive. The following three factors are aimed to ensure that the process has the solid foundation to reach the end of the assessment cycle:

- **Central**
  Ensure that any outcome/objective upon which you decide is central to your course/program/department. This will ensure the greatest amount of buy-in from various individuals and thus, have the best chance of being completed. This will enable the widest impact on student learning, student success and client experience.
- **Feasible**
  Look at your resources (human, time, technological, etc.) and determine whether the outcome and its assessment are feasible. Is it likely that the process could be accomplished or is it wishful thinking? A reality check helps determine the likelihood of success in following through with the assessment.
- **Meaningful**
  Are you selecting the outcome/objective because it is easy to measure or because you really think it is important to measure? It is recommended that you select something that your group is curious about, something that will make a positive impact for your students/clients, and something you will be interested in starting *and* completing the assessment process.

Step 2: SLO/AUO Statements

Develop a list of SLO/AUO statements.

Develop a first draft of a list of outcomes/objectives. Bear in mind that even though they are defined, they are not static. Outcomes and objectives are dynamic. They are subject to periodic revision in order to maintain currency and relevance and most importantly, continue to meet the needs and expectations of the students and clients. However, if they continue to be relevant through time, they do not need to be changed.

Think about the big picture. Set realistic goals and have high expectations (those that require higher-level thinking such as synthesis of basic skills) of your students or clients. Discuss the kinds of student product or client output that might demonstrate these expectations so that the performance can be measured.

As mentioned above, it is neither necessary nor efficient to start from scratch when developing outcomes/objectives. The following are some resources where outcomes/objectives might already exist:

- Look at goals and outcomes from another course, program, or department that is similar to yours but external.
- Professional organizations may have broad outcomes/objectives which can be revised to become applicable to your course/program/department.

Career and Technical Education (CTE) programs should consult their advisory committee, accrediting boards or professional organizations. These groups can easily define which abilities, attitudes or skills program completers should have in order to be successful in their occupation.

The following are some guiding questions to help you and your team come up with SLOs and AUOs:

SLO	AUO
Think about a course completer or program graduate. What kind of course/program experience would allow for the greatest student success? As a result of this course/program: • What should this student know or understand? • What will this student be able to do? • What kind of skills or values will this student possess?	Think about a client who will receive a certain service. What kind of service experience would allow for the greatest client satisfaction? As a result of this service: • How should this client act? • What kind of attitude should this client possess? • What will the client gain?

When considering the questions above, think about how you will know whether or not your students or clients have performed as you had intended for them to perform. What

will the students or clients do to provide evidence that they have successfully met your expectations?

It is also important that your outcomes/objectives are **measurable**. Can they be observed or tested? Can accurate and reliable data be collected for the objective? One way to ensure that an SLO or an AUO is measurable is to use action verbs (such as demonstrate, apply, recall, evaluate), since action on the students' or clients' part will result in an overt behavior that can be measured. Avoid terms like 'become aware of', 'appreciate', 'learn' or 'understand' since they are not observable.

A major element in planning your SLO/AUO assessment is to determine what tool you will use to determine whether or not (and how well) your students or clients have met your expectations. Thus, the assessment tool is very important. Consider using existing materials or processes. Look at what is already being done to minimize any duplication of effort. For SLOs, use your syllabi, course outlines or textbooks and choose one or two major assignments/activities that you give regularly that you feel are central to the course. This can also be applied to the non-instructional side. For AUOs, discuss any service checks that you perform on an ongoing basis. **Regardless of what you select as a group to assess, it must be important to you!** And, remember to keep it simple, especially when you are starting out!

How to write a STUDENT LEARNING OUTCOME

In one sentence, describe one major piece of knowledge, skill, ability, or attitude that a student will have gained by the end of your course or program. Make sure that the SLO represents a fundamental result of the course and aligns with other courses in a sequence, if applicable.

There is no need to reinvent the wheel. It may actually help to work backwards. What are you already doing in the course/program that you feel is central to the course/program? Take a look at your course assignments or syllabus. If there were just a couple of topics that you could teach the students from the entire course/program, what would they be? Another approach would be to make a list of all of your major assignments and try to extract the central piece of knowledge, skill, ability, or attitude that you are intending for the students to capture.

A set of guidelines has been developed to help you evaluate your SLO progress. The checklist is provided as **Appendix C**. It includes the following questions:

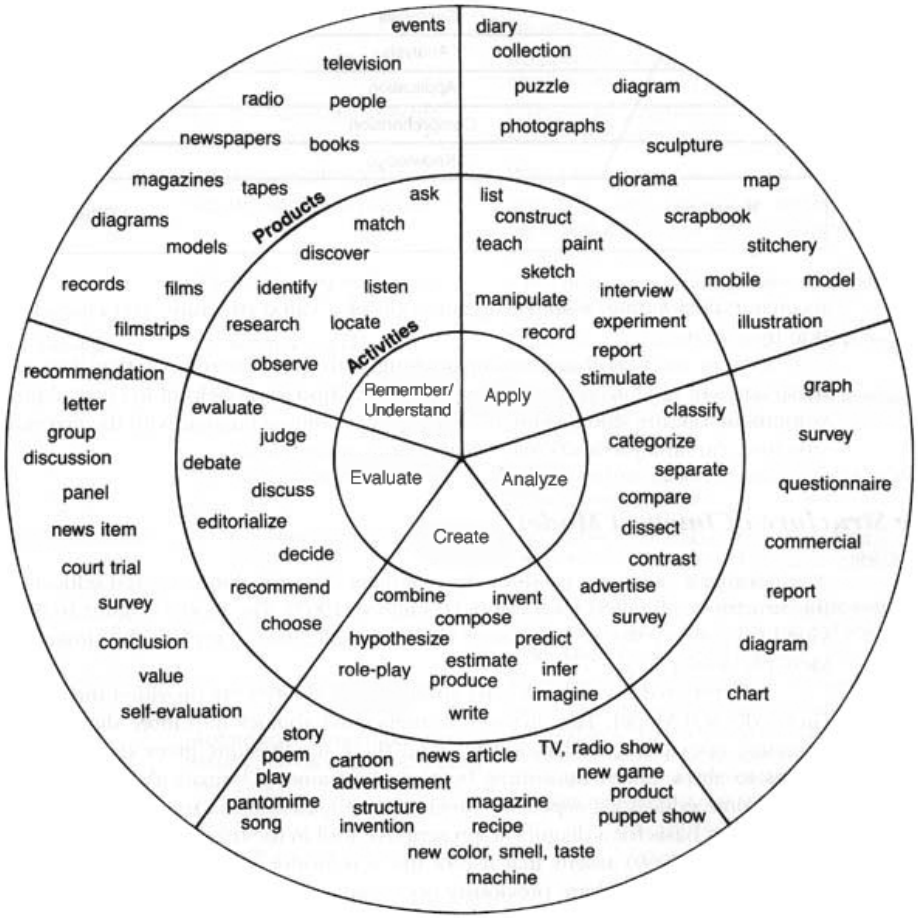
1. Have you indicated whether your outcome is course-level or program level?
2. Does it align with department goals?
3. Is it central to the course/program?
4. Is it reasonable given the ability of the students?
5. Does it explicitly state what the students will think, know, feel or be able to do as a result of the course/program?
6. Is it measurable (observable)? (Hint: Use action verbs.)

Bloom's taxonomy (see diagram) is a very useful framework for describing SLOs. It identifies a hierarchy of cognitive learning outcomes from lower-level to higher-level thinking abilities. It starts at the basic knowledge level and works through the evaluation level. A variety of action verbs are provided to assist with measuring specific student abilities and skills. The great benefit of these verbs is that they are action verbs and thus, observable and measurable! Since SLOs can address a variety of learning from simple memorization and recall of basic facts to complex analysis and evaluation skills, Bloom's taxonomy is especially effective.

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Cite	Associate	Apply	Analyze	Arrange	Appraise
Count	Classify	Calculate	Appraise	Assemble	Assess
Define	Compare	Classify	Calculate	Collect	Choose
Draw	Compute	Demonstrate	Categorize	Compose	Compare
Identify	Contrast	Determine	Classify	Construct	Criticize
List	Differentiate	Dramatize	Compare	Create	Determine
Name	Discuss	Employ	Debate	Design	Estimate
Point	Distinguish	Examine	Diagram	Formulate	Evaluate
Quote	Estimate	Illustrate	Differentiate	Integrate	Grade
Read	Explain	Interpret	Distinguish	Manage	Judge
Recite	Express	Locate	Examine	Organize	Measure
Record	Extrapolate	Operate	Experiment	Plan	Rank
Repeat	Interpolate	Order	Identify	Prepare	Rate
Select	Locate	Practice	Inspect	Prescribe	Recommend
State	Predict	Report	Inventory	Produce	Revise
Tabulate	Report	Restructure	Question	Propose	Score
Tell	Restate	Schedule	Separate	Specify	Select
Trace	Review	Sketch	Summarize	Synthesize	Standardize
Underline	Tell	Solve	Test	Write	Test
	Translate	Translate			Validate
		Use			
		Write			

source: Bronx Community College Institutional Research (http://www.bcc.cuny.edu/InstitutionalResearch/Assessment.htm)

The diagram below is another representation of Bloom's taxonomy. It identifies the transition from lower-level to higher-level thinking by moving clockwise from Remember/Analyze to Evaluate.



source: www.whenlilacs.com

Hints for writing SLOs:

- Make sure the outcome can be tested or assessed.
- Have a manageable number of outcomes. Maybe a course/program/department could develop 2-4 outcomes. Try to pare down the outcomes to those that truly reflect the major skills or knowledge that students will take away from the course/program/department.
- When developing your outcomes, keep in mind what kind of student product (i.e. assignment, test, project) will help you decide if the expectations have been met.
- Define any terms that individuals outside of the course or program would not be able to readily understand.
- A word of caution about assessing the 'feel' component. Attitudes may appear easy to assess but they require a lot of thought and specificity. Ask yourself if the attitude of the students is necessary for course/program success. Would it be acceptable if the student didn't have the expected attitude but met the other expectations regarding knowledge, skills and abilities? What is the priority?

- When starting out, try not to get in over your head with the number or difficulty of the statements. Keep your statements simple and assess one main skill at a time. A rule of thumb is to have 2 SLOs per course, 2 SLOs per program, etc.
- If multiple skills can be synthesized to build a major skill, feel free to create one SLO. Don't bundle unrelated items – break them down into separate SLOs.

Sample SLO statements could begin with the following:

- Nursing students will be able to evaluate…
- ESL (Level 2) students will be able to categorize…
- Chemistry 1 students will hypothesize…
- Political Science 3 students will be able to discuss…
- Nutrition and Food 10 students will be able to construct…
- Students meeting with Educational Advisors will be able to prepare…
- Faculty members attending a Professional and Organizational Development (POD) session on Blackboard Basics will be able to create…

How to write an ADMINISTRATIVE UNIT OBJECTIVE

In one sentence, describe what a client will experience, receive, or understand as a result of a given service. Make sure that the AUO represents a fundamental function of your department and aligns with your department goals and/or mission statement.

AUOs are central to a unit/office/department's critical activities such as providing a service, improving a service or decreasing/increasing the likelihood of an event. What does the client experience through interaction with your unit? How do you know when your unit is both efficient and effective?

Some concepts to consider include the following:

- Level or volume of activity
- Efficiency (cost savings measures, turnaround time, improving a process)
- Compliance with external standards or regulations
- Client satisfaction
- Client outcomes

Sample objective statements could begin with the following:

- The students will experience…
- The campus will receive…
- The faculty will be satisfied with…
- The staff, student, and visitors will understand…

A set of guidelines has been developed to help you evaluate your AUO progress. The checklist is provided as **Appendix D**. It includes the following questions:

1. Does it align with department goals?
2. Does it state that the unit will provide, improve, increase, and decrease *or* that the clients will understand, be satisfied with, receive…?
3. Is it measurable (observable)?

4. Is it central to the unit/office/department?

Hints:

- Make sure the objective can be tested or assessed.
- Have a manageable number of objectives. Maybe a department could develop 2-4 objectives. Try to pare down the objectives to those that truly reflect the major skills or knowledge that clients will take away from the service(s) provided.
- When developing your objectives, keep in mind what kind of client behavior will help you determine if the expectations have been met.
- Define any terms that individuals outside of the service department would not be able to readily understand.
- A word of caution about assessing the 'feel' component. Attitudes may appear easy to assess but they require a lot of thought and specificity. Ask yourself if the attitude of the clients is necessary verifying the success of the service. Would it be acceptable if the client didn't have the expected attitude but met the other expectations of the experience?
- When starting out, try not to get in over your head with the number or difficulty of the statements. Keep your statements simple and assess one thing at a time.

Step 3: Assessment Plan

Develop assessment plans for the SLOs/AUOs.

Once you have drafted your list of SLOs/AUOs, it is time to develop a plan to assess each of them. What will students/clients do in order to demonstrate that they have met your expectations? What kind of assessment tool could you use? Are there tools that already exist?

Write the plan in a manner that anyone would be able to follow through with it in case the original authors were no longer involved with the project. Think of it as a recipe for a cake that anyone can follow. There may be expected or unexpected changes in the individuals that work in a program or department and instead of starting the SLO or AUO process from the beginning, a clear assessment plan will serve as a blueprint for anyone to continue.

Your assessment plan should include the following:

- What means of assessment will you employ? Choices include course-embedded assessment, portfolio, survey, test, etc.
- How do you expect your students/clients to fare? Establish a minimum score for success and indicate the number (%, fraction, actual number) of students/clients who you expect to meet the minimum score
- Who will you assess? Consider the course(s), class sections, activity, workshop, term, etc.
- How will you collect your evidence?
- When will you collect your evidence?
- Who will be responsible for the administration of the assessment?
- Who will be responsible for the evaluation of the data collected?

- If you have conducted this assessment in the past, do you have any previous data to use as a marker for comparison?
- How would you plan to use the results?

Remember that you don't have to measure everything about every student during every course in every term or about every client for every service! Be selective and measure only those areas in which you are most interested and/or that are most relevant to meeting current or future student/client needs.

In order for the results to be useful, the assessment tools must possess both **validity** and **reliability**. Validity is the degree to which the assessment measures what it was intended to measure. Reliability is the consistency of an assessment.

The concepts of validity and reliability are demonstrated in the following example. If someone that weighs 175 pounds steps on a bathroom scale ten separate times, and it reads "175" each time, then the measurement is valid and reliable. If the scale consistently reads "225," then it is not valid, but it is still reliable because the measurement is consistent. Reliability is a measure of consistency whereas validity is a measure of accuracy.

For more information regarding validity, reliability, or anything related to research and statistics, please contact the Research and Institutional Effectiveness Office.

Consider the following questions when developing your assessment plan:

- How will you know if and how well you have accomplished your objective? What can the student or client do to demonstrate that they have met the SLO or AUO?
- For SLOs:
  Do you have any existing assignments that will offer students an opportunity to address the expectation set in your SLO?
- For AUOs:
  Are there existing service performance checks that could be used to assess the objective statement?

Note: For SLOs, another way to develop outcomes is to look at what is already being done. This process is called **course-embedded assessment**, since the assessing or testing of outcomes is being incorporated into the course itself or may already exist.

Consider the use of multiple measures to assess an SLO or AUO. If you have a concept that is central to your course, program, or service, try to find more than one way to assess it. For example, if you expect your students to be able to possess a skill, think about several ways that they could provide evidence that they indeed possess the skill. Thus, students could self-report their skill on a survey, correctly answer the relevant questions on a final exam, and produce a project that requires them to use the skill. Using more than one way to assess an SLO or an AUO enables you to truly determine if your outcome or objective was met.

When you have developed your assessment plan, include it into your e-PIE form. Attach the relevant assessment tool (such as the survey, test questions, rubric, and focus group discussion items) directly to the e-PIE form. For practical assessment methods and tools, look at the Assessment Toolkit (**Appendix A**).

Also, the Research and Institutional Effectiveness Office is available to assist you and your department in developing an assessment plan that aims to measure your SLO. The Office has many resources that can ease the process and help you get started on the assessment.

Examples: Assessment Plans

Sample documented means of assessment and criteria for success for SLOs include the following:

- **Music**: 75% of students will perform all of the selected 6 (of the 12) major scales correctly in a maximum of two attempts. The scales will be evaluated by at least two full-time faculty using a checklist as a pass or fail. The performance will be assessed at the end of the spring and fall 2006 semesters in the normal performance evaluation process for the classes.
- **ESL**: By the end of fall 2006, 60% of Level 5 ESL students reporting orally will receive a passing score of 12 or higher (out of 18) on an ESL department oral rubric for Level 5 as measured by their classroom instructors.
- **Speech**: 70% of the students completing Speech 1A will have an average of 2 on a three-point scale rubric evaluating eye contact, organization, body control, and volume. The rubric will be used on speech delivery for a speech given in the last fourth of the semester in spring '07. The speech will be judged by designated faculty and the data will be evaluated by the dept. SLO committee.
- **Fashion and Merchandising**: The Fashion and Merchandising department faculty will evaluate the design and fabrication projects during the 16th week of the fall and spring semesters. Successful students will receive a minimum score of 2 out of 3 in all 4 criteria of a design and fabrication rubric. Assessment will occur the 16th week of FASH 31. Students will be considered course completers after successfully passing FASH 10, 20, 21 or 22, and 31.
- **Fire Technology**: The Fire Technology Program at Mt. San Antonio College will administer and evaluate the standardized State Fire Marshall Firefighter I certification during the 15th week of the spring and fall semesters. Evaluations will be based upon standards set by The Office of the State Fire Marshall and The California Fire Service Training and Education System.
- **Air Conditioning and Refrigeration**: AIRC Program completers will report employment in the field of Air Conditioning and Refrigeration based on the AIRC Student Employment Survey. Of the AIRC program completers NOT employed in the HVAC&R when joining the program:
  60% will report employment in the field of Air Conditioning or Refrigeration.
  AIRC program completers EMPLOYED when joining the program:
  70% will report a pay increase.
  80% will report new skills to improve their position in their existing company.
  55% will report new skills to change jobs.

Sample documented means of assessment and criteria for success for AUOs include the following:

- **Information Technology**: System Availability and Uptime – the student information system will be available 99% of the time during normal business hours (7:30 – 4:30 Monday – Friday) as measured in academic year 2005-06 by the system administrators collecting system availability statistics. Evaluation will occur at the end of the academic year, June 30, 2006.
- **ESL**: Our current ESL Department records show that there is an estimated 76% rate of completion of all data sets per semester. Our goal is to improve the completion rate (# complete/all students) by 10% by the end of fall 06. Using this baseline analysis, a special report was created by the Special Projects Supervisor and run monthly to identify the data set completion status for ever new student entering the ESL program.
- **Learning Assistance Center**: 75% of students will complete the entire survey on preferences for the Skills Lab environment. 70% of the student will mark 'a' on Question 1 to show the satisfaction with the current space. 40% will mark 'a' on Question 2 to show satisfaction with the conditions. The four question survey will be administered by the front counter personnel on the sixth week of spring 2007 semester as they check into lab. Skills Lab personnel will tabulate and average the responses.

Step 4: Data Collection

Assess student learning or client experiences.

This step sounds easy but is the one where most assessment efforts stall. Many departments are able to develop SLOs and AUOs and accompanying assessment plans but have difficulty administering the assessment and collecting the data. The first assessment cycle is usually the hardest to continue and complete because it competes with many other responsibilities and priorities. It may help to discuss this challenge and brainstorm possible maneuvers during the formation of the assessment plan. Some helpful tips:

- Have SLOs/AUOs as a standing item on department meeting agendas.
- Block time in your schedule to complete the assessment plan.
- Designate an individual to be the Assessment agent who is responsible for reminding the department when important dates are approaching.

Surveys, focus groups, and performance exams are a few assessment methods. They produce very useful data, but require more endurance and team work than course-embedded assessment methods that capitalize on tools that already exist. For example, if the program or unit chooses to conduct a survey, they should consider the additional resources required to create the survey and collect the data. If a program chooses a performance exam, a rubric will have to be created to ensure that the evaluation is common across all course sections offered.

The Research and Institutional Effectiveness Office can assist with selecting the appropriate assessment tool, performing validity and reliability checks, preparing data

interpretation and analysis, and explaining guidelines for norming rubrics. Although the RIE Office will not assist with the actual administration of the surveys or data collection, it can provide input in how to best administer the assessment tool. The data collection is housed within the program or department. Given the amount of time that the faculty and staff devote to their obligations, it is very reasonable to have surveys conducted by external contractors or to employ student workers to perform various administration duties. The latter method, however, requires supervision and training in order to be effective. When possible, consider course-embedded assessment using assignments or activities that already exist and submit the planned tools to the RIE Office for validity and reliability checks.

Step 5: Data Analysis

Aggregate and analyze the data.

After the assessment has been conducted, analyze and summarize the data. Refer to your assessment plan and examine the actual student performance or client behavior with what you had expected. How do they compare?

Some questions to consider when studying the data:

- What skills (or portions of skills) did student universally understand? What were most common errors that students made? What did the students not grasp at all?
- What parts of the service did clients express the greatest satisfaction? What were some of their recommendations?
- Are there other findings that exist that you did not expect? What are you most surprised by?
- Were there any trends, patterns or themes that emerged from the data?

Some guidelines to keep in mind after documenting the data:

- Does your summary of the data clearly address the means of assessment and criteria for success stated in the assessment plan?
- Have you reported the actual results for the expected level of success (include %, fraction, actual number, etc.)?
- Have you highlighted any key findings?

When you have prepared your summary of data, enter it into your e-PIE form. Attach any relevant documents such as spreadsheets or findings.

Examples: Data Analysis and Summary

- **Air Conditioning and Refrigeration**: This summary indicates the response of the program completers that were contacted through the AIRC Employment Survey. 52 students were contacted.
  Criterion (1) 16 students were not employed in the field when entering the program. At the time of the survey, 10 program completers, 63% reported employment in the HVAC field as a result of their educational experience.
  Criterion (2) 36 students were employed in the field when entering the program.

At the time of the survey:
23 or 64% had received a pay increase.
32 or 89% learned new skills to improve their position.
12 or 33% learned new skills to change jobs.
Key finding: Students that enter the program while employed in the industry are not receiving pay increases or transferring their employment at the levels expected by the department.

- **Welding**: From fall 2006 and spring 2007: These following scores reflect the percentage of students passing each subcategory of the practical exam.:

Welder Selection	100%
Welder Set up	90%
Metal Preparation	100%
Rod Selection	82%
Speed of Travel	50%
Rod Angle	50%

Students require additional instruction in learning rod selection, and the manipulative skills of rod angle and speed of travel to meet the department's outcomes.

Step 6: Closing the Loop

Determine ways to use the data and make applicable revisions to the curriculum, departmental processes, and the outcomes/objectives.

Schedule and conduct another meeting with your faculty/staff to discuss the assessment results and the data summary. This step is the most vital since this is the time when you and your team can examine the findings, see areas for growth or opportunity, and brainstorm ideas and methods to address those areas. The purpose of this meeting is to stimulate meaningful dialogue and initiate change.

Guiding questions could include the following:

- Were you satisfied with the student performance or client response?
- Are changes or improvements necessary?
- Based on the data analysis and summary, how would you modify the teaching/service to better address the student/client needs?
- SLOs: What should be done to improve student learning? What elements of the teaching and learning process should be added, deleted or modified to increase student success?
- AUOs: What do you need to improve client experiences?
- Evaluate the assessment plan. What did you think of this SLO/AUO? Does it need to be revised? Does the criteria for success need to be changed?
- Should this outcome/objective be assessed again?

Once adequate discussion has taken place, determine the plan of action to make necessary revisions or changes. When documenting your use of results, consider the following:

- Does your plan for change align with the findings from the assessment effort?

- What does your unit/office/department plan to do as a result of the findings?
- Who will be responsible for making the change?
- When will the change take place?

Examples: Closing the Loop

- **Air Conditioning and Refrigeration**: As a result of the low scores in all of the subcategories, the department included six hours of ICE exam review in the CSL 34 class and 3 hours in ICE exam review in AIRC 25. Direct instruction on test-taking skills was added to CSL 10, 20, 25, 26A, and 34.
- **Welding**: As a result of the low scores in the two subcategories involving manipulative skills, the Welding department began a peer tutoring program to assist welders with their manipulative skills. As a result of the low scores in subcategory 4, direct instruction on welding rod selection has increased by 3 hours in both WELD 40 and WELD 51.

Step 7: Documentation

Incorporate your SLO/AUO process into your electronic Planning for Institutional Effectiveness (Mt. SAC's program review).

As you move throughout the assessment process, continue to document your assessment efforts into your electronic PIE (e-PIE) form. Develop some of your goals, needs, and resources based on the results of your assessment efforts and subsequent discussions. Remember to align your SLOs and AUOs to the related department goals, department mission and college goals, as applicable.

Trainings regarding e-PIE are being conducted on an ongoing basis through the Professional and Organizational Development (POD) Office. An e-PIE manual can be obtained through the Information Technology (IT) department. Any questions regarding the technical aspects of e-PIE can be directed to the Office of Information Technology and any questions regarding SLOs and AUOs can be directed to the Research and Institutional Effectiveness Office.

Step 8: Continuous Cycle

Repeat the process continuously focusing on various SLOs/AUOs.

The process of self-reflection and assessment must remain a continuous process in order to bring about meaningful change. Assessment enables each department to evaluate its current and future goals and needs and plan strategies to serve its students and clients. Continuous improvement builds on existing efforts to improve student performance and optimize client experiences. Thus, it is imperative to continue dialogue and revise assessment efforts as necessary to ensure that student and client needs are being met.

EXAMPLES OF NICHOLS' 5-COLUMN MODEL

EXAMPLE 1: MUSIC (SLO)

Column 1: Mission/Goals	Column 2: Intended Outcomes/ Objectives	Column 3: Means of Assessment/ Criteria for Success	Column 4: Summary of Data	Column 5: Use of Results
To provide quality transfer, career and lifelong programs that prepare students with the knowledge and skills needed for success in an interconnected world.	Music 16 students will be able to 1. perform technical exercises with competence 1.1 perform the 12 major scales on their instrument Music 16 returning students will be able to 1.2 perform the minor scales	1.1 75% of students will perform all of the selected 6 (of the 12) major scales correctly in a maximum of two attempts. 75% of returning students will perform all of the selected major and minor scales in a maximum of two attempts. The scales will be evaluated by at least two full time faculty using a checklist as a pass or fail. The performance will be assessed at the end of the Fall 2006 semesters in the normal performance evaluation process for the classes. 1.2 75% of returning students will perform all of the selected minor scales in a maximum of two attempts. The scales will be evaluated by at least two full time faculty using a checklist as a pass or fail. The performance will be assessed at the end of the Fall 2006 semesters in the normal performance evaluation process for the classes.	1.1 We had 27 new students play 6 major scales (Eb, Bb, F, C, G, D) and here are the results: 13 students played all 6 scales correctly, 48% 5 students played 5 scales correctly, 19% 4 students played 4 scales correctly, 15% 4 students played 3 scales correctly, 15% 1 student missed her jury, 3% 1.2 Four our new SLO we had 23 returning students play their 6 minor scales (c, g, d, a, e, b) and here are the results: 15 students played 6 scales correctly, 65% 3 students played 5 scales correctly, 13% 1 students played 4 scales correctly, 4% 2 students played 3 scales correctly, 9% 1 students played 2 scales correctly, 4% 1 student played 0 scales correctly, 4% Key Findings: **All students were below the expected level of 75%** Returning students fared better than new Members. There are still inconsistencies in getting clear details to students and instructors. This process is helpful in preparing future majors for experiences that they would be having at a four-year institution.	(Possible directions for the use of these results: 1.It was suggested that we use the *harmonic* or *melodic* form instead of the natural minor scale 2.The department proposed adding rhythmic exercises to juries, which would also include vocal students 3.We also discussed creating a new *music major book,* containing info on scale requirements, rhythmic exercises, and required courses)

EXAMPLE 2: PURCHASING (AUO)

Column 1: Mission/Goals	Column 2: Intended Outcomes/ Objectives	Column 3: Means of Assessment/ Criteria for Success	Column 4: Summary of Data	Column 5: Use of Results
Department Mission: It is the mission of Mt. San Antonio College's Purchasing Department to provide quality information, goods and services in a fiscally responsible, courteous, and efficient manner to support the educational and institutional goals of the College. **Department Goals** · Assure that current Purchasing processes provide a satisfactory level of service to the campus and community. · Provide campus-wide training and guidance for technology-driven Purchasing changes. · Provide and maintain current information about Purchasing and its processes to the campus and community.	1. The **MAIL SERVICES** section will provide timely and accurate mail services campus-wide.	Conduct a customer satisfaction survey, created by Purchasing and administered by Office of Research & Institutional Effectiveness in Fall 2006. Success is defined as an 80% response rate of agree or strongly agree on all survey questions.	Survey conducted Sept. 2006 Who Responded: 163; 62% of which interface daily or weekly; 61%-classified, 26%-faculty, 13%-managers Survey tool was flawed; 10-13% marked 'No Opinion' which did not indicate satisfaction or not with measured criteria. Promptness: 84.1% agree (+) and 2.5% disagree (-) Accuracy: 82.8%(+) and 1.8% (-) Attitude: 87.7%(+) and 0%(-) Overall Satisfaction: 90%(+); 1.2%(-) Of the 23 comments received, the following were requests for: 3 – faster service 3 – single mail service point 3 – more information about the process	Even with a flawed survey tool, MAIL SERVICES exceeded the 80% success rate for every measured criterion. Refine survey so next time all results can be measured. Response to comments: MAIL SERVICES received their best scores for their positive attitude and the overall satisfaction they provide, which was reflected in the positive comments. Since the survey was performed, one (1) Mail Room Operator has been changed from part- to full-time – the 20 additional hours increases the stable workforce – which should improve service time. The structure of MAIL SERVICES (main processing area and faculty mail boxes in the Administration Building, and departmental mail delivered/picked-up at each office on campus) is dependent, in part, on division and building changes in next 2-3 years since there is currently not enough space to do everything in one location. Information is being developed for departmental intranet site.

CONCLUSION

SLOs and AUOs are two of the primary assessment efforts currently taking place at Mt. SAC. This guidebook has attempted to introduce the fundamentals of these efforts in order to enable you to develop and assess them. If these efforts evolve into new initiatives, **remember that the essence of assessment remains the same**: self-reflection, evaluation, and change. Our focus as an institution is on the success of our students through their instructional and non-instructional experiences. You are all assessing on an ongoing basis and hopefully, this guidebook has demonstrated various ways to articulate, document, and share the efforts taking place across the campus!

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RESOURCES AT MT. SAC

The following individuals can provide assistance with the development and assessment of SLOs and AUOs.

Joan Sholars — Specialty: SLOs
SLO Faculty Coordinator
Faculty, Math
jsholars@mtsac.edu ext. 4610

Priyadarshini Chaplot — Specialty: SLOs and AUOs
Educational Research Assessment Analyst
Research and Institutional Effectiveness
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Kate Scott — Specialty: Technology of e-PIE
IT Specialist
Information Technology
kscott@mtsac.edu ext. 5562

Jennifer Tucker (after November 1, 2008) — Specialty: Basic Skills SLOs and AUOs
Educational Research Assessment Analyst
Research and Institutional Effectiveness
jtucker@mtsac.edu ext. 4708

The following websites may also serve as resources:

SLOs and AUOs at Mt. SAC: http://www.mtsac.edu/instruction/outcomes/
(to be updated in 2008-09 academic year)

Student Learning Outcomes Committee:
http://inside.mtsac.edu/organization/committees/slo/index.html

Institutional Effectiveness Committee:
http://inside.mtsac.edu/organization/committees/iec/

e-PIE:
http://tracdat.mtsac.edu/tracdat/
(training required in order to log in, contact Kate Scott)

APPENDIX A: ASSESSMENT TOOL BOX

	TOOLBOX	Assessment Type		Data Type		Assessment Level				
		*Formative*	*Summative*	*Direct Data*	*Indirect Data*	*Classroom*	*Course*	*Program*	*Division*	*Project*
	METHOD OF ASSESSMENT									
1	Muddiest Point	√		√		√				
2	Directed Paraphrase	√		√		√				
3	Minute Paper	√		√		√				
4	Characteristic Features	√		√		√				
5	**Recall, Summarize, Question, Comment, Connect**	√		√		√				
6	Transfer and Apply	√		√		√				
7	Anecdotal Records	√		√		√				
8	ConcepTests	√		√		√				
9	Concept Mapping	√		√		√				
10	Quizzes or Exams	√	√	√		√	√	√	√	
11	Rubrics	√	√	√		√	√	√	√	√
12	Essay	√	√	√		√	√	√	√	
13	Case Studies	√	√	√		√	√	√	√	√
14	Problem Solving	√	√	√		√	√	√	√	
15	Speech	√	√	√		√	√	√	√	
16	Oral Interview	√	√	√		√	√	√	√	√
17	Debate	√	√	√		√	√	√	√	
18	Product Creation	√	√	√		√	√	√	√	√
19	Flowchart or Diagram	√	√	√		√	√	√	√	√
20	Team Project	√	√	√		√	√	√	√	
21	Portfolios		√	√		√	√	√	√	
22	Performance		√	√		√	√	√	√	√
23	Capstone Project	√	√	√		√	√	√	√	
24	Reflective Self-Assessment Essay		√	√	√	√	√	√	√	√
25	Satisfaction or Perception Surveys		√		√	√	√	√	√	√
26	Licensing Exams		√	√			√	√	√	
27	Standardized Tests		√	√			√	√	√	
28	Exit Interviews		√	√	√	√	√	√	√	√
29	Focus Groups		√		√	√	√	√	√	√
30	Pre / Post Testing	√	√	√		√	√	√	√	√

ASSESSMENT TOOL BOX

Introduction

This toolbox is designed to provide examples of assessment methods that can be used as course-embedded assessment. Each assessment method is briefly described and includes the suggested advantages and disadvantages along with references to review for more information. This list is not meant to be inclusive of all ways to measure student learning outcomes. If you are unsure of which method to use to measure your SLO or AUO, contact the Research and Institutional Effectiveness Office for assistance.

Key Definitions:

Source: James Madison University Dictionary of Student Outcome Assessment

Evaluation: This term broadly covers all potential investigations, with formative or summative conclusions, about institutional functioning. It may include assessment of learning, but it might also include non-learning centered investigations (e.g., satisfaction with recreational facilities).
http://people.jmu.edu/yangsx/Search.asp?searchText=evaluation&submit=Search&Option=Term

Assessment: The systematic process of determining educational objectives, gathering, using, and analyzing information about student learning outcomes to make decisions about programs, individual student progress, or accountability
http://people.jmu.edu/yangsx/Search.asp?searchText=assessment&submit=Search&Option=Term

Additional information on The Assessment Process can be found at:
http://www.jmu.edu/assessment/resources/Tips_Process.htm

Formative assessment: An assessment which is used for improvement (individual or program level) rather than for making final decisions or for accountability
http://people.jmu.edu/yangsx/Search.asp?searchText=formative&submit=Search&Option=Term

Summative assessment: A sum total or final product measure of achievement at the end of an instructional unit or course of study
http://people.jmu.edu/yangsx/Search.asp?searchText=summative&submit=Search&Option=Term

Direct: Direct measures of student leaning require student to display their knowledge and skills as they respond to the instrument itself. Objective tests, essays, presentations, and classroom assignments all meet this criterion.
http://people.jmu.edu/yangsx/Search.asp?searchText=direct&submit=Search&Option=Both

Indirect: Indirect methods such as surveys and interviews ask students to reflect on their learning rather than to demonstrate it.
http://people.jmu.edu/yangsx/Search.asp?searchText=indirect&submit=Search&Option=Term

Methods of Assessment

1. Muddiest Point

Based on the premise that most lectures can be improved, this method is to ask students to write down the concepts that were least clear to them. Those least understood concepts that total a pre-determined threshold would be addressed by the professor in future lectures or by an additional handout clarifying the subject-matter.

Advantages: Requires students to organize and filter their understanding of several topics to select one that was least understood. It requires minimal time to read the results.

Disadvantages: This method should be used only occasionally as it focuses on a negative aspect of learning rather than a positive one.

T.A. Angelo and K. P. Cross, 1993. *Classroom Assessment Techniques*, 2nd ed. San Francisco: Jossey-Bass.

http://www.siue.edu/~deder/assess/cats/muddy3.html

2. Directed Paraphrase

This method promotes simulation of actual work or life-related experiences. Students are asked to summarize the key concepts from a class or lecture and formulate a written discussion of those concepts to an imagined, specific recipient. The differentiation between this method and a simple summarization is use of role play by the students.

Examples:
1. A nursing student might be directed to paraphrase the concept of drug clearance by the kidneys to a worried patient.
2. An economics student might be directed to paraphrase a point of tax policy to a corporate CEO.
3. A philosophy student might be directed to paraphrase an ethics concept so that it is readily understood by a teenager.

Advantages: Students are challenged in brevity and choice of language when writing the paraphrase. Students become well-prepared for similar situations in the work environment.

Disadvantages: Some students may see this method as informal. This can be avoided by detailed phrasing of the initial question.

http://www.siue.edu/~deder/assess/cats/paraph1.html

3. Minute Paper

Students are asked to spend about a minute to write down the main idea of a topic or class. The Minute Paper is commonly used to determine if the main idea of the instructor's lecture is captured by the students. An instructor may request the inclusion of a question students may have on the subject matter, or, ask students to comment on interesting, disturbing, or surprising aspects of a lecture or class.

Advantages: Minute Papers offer immediate feedback and, possibly, positive reinforcement to the professor. There is creative variability in the use of Minute Papers. Students must use organizational skills to chunk the information and rank the concepts. If questions are used, the assessment becomes integrative. Use of Minute Papers requires minimal time.

Disadvantages: May be time-consuming to review for large classes. Forming teams to answer question(s) may alleviate this issue.

T.A. Angelo and K. P. Cross, 1993. Classroom Assessment Techniques, 2nd ed. San Francisco: Jossey-Bass., p.148-53

http://www.siue.edu/~deder/assess/cats/minpap4.html

4. Characteristic Features

Characteristic Features is an assessment technique that requires students to differentiate between characteristics that do or do not define one or more topics. Using a grid structure, the instructor lists several characteristics in the left-hand column. In the columns to the right, the instructors gives topic headers, and the students are to enter a plus, "+" or minus, "-" sign to designate whether the characteristic in the left-hand column is or is not applicable to the topic header.

Example:

Characteristic Feature	Grades	Classroom Assessment
1. More closely focused on improving learning and teaching rather than on recording results	–	+
2. Used primarily at the end of a course or project	+	–
3. Source material is usually collected anonymously	–	+
4. Mostly quantitative and suitable for statistical analysis	+	–
5. Directly mirrors student understanding of course	+	+

material		
6. Emphasizes judgmental process and summative evaluation	+	–
7. Results designed for official and external use	+	–
8. Use of standardized and externally validated instruments preferred	–	–
9. Requires training in research methods	–	–
10. Results useful to professors and students	+	+

Source: Southern Illinois University, Classroom Assessment

Advantages: Characteristic Features measure students' use of analysis to identify central concepts. Scanning results is simple and can be done quickly.

Disadvantages: Grid creation may be time-consuming. Students may score highly due to random selection rather than content knowledge.

http://www.siue.edu/~deder/assess/cats/featurs6.html

5. RSQC2 - Recall, Summarize, Question, Comment, and Connect

Students take two minutes to *recall* and list in rank order the most important ideas from a previous day's class. Then they take another two minutes to *summarize* those points in a single sentence in order to "chunk" the information. Next, students are asked to write one major *question* that they want answered. Finally, students identify a thread or theme to *connect* this material to the course's major goal. As an option, students may add a *comment* regarding their confidence in or wariness of the specific course content.

Advantages: RSQC2 requires students to organize information and to comprehensively assess how it applies to the overall foundation of the course.

Disadvantages:
RSQC2 is time-consuming to evaluate. It also forces the professor to evaluate the course structure.

T.A. Angelo and K. P. Cross, 1993. *Classroom Assessment Techniques*, 2nd ed. San Francisco: Jossey-Bass., p. 344-8

http://www.siue.edu/~deder/assess/cats/rsq9.html

6. Transfer and Apply

Students are asked to takes course theories learned and to transfer the knowledge to applications and situations they have experienced.

Advantages: Because transference of learned material is a challenging cognitive achievement, Transfer and Apply provides students practice in mastering the task. Evaluating the results may be done rather quickly.

Disadvantages: Creating rubric to assess Transfer and Apply may be time-consuming. (see section on Rubrics)

T.A. Angelo and K. P. Cross, 1993. *Classroom Assessment Techniques*, 2nd ed. San Francisco: Jossey-Bass., p. 236-9

http://www.siue.edu/~deder/assess/cats/apps9.html

7. Anecdotal Records

Anecdotal Records are written observations of instructional experiences within a pre-defined set of content standards.

Advantages: Anecdotal records facilitate review of assessment and curriculum by providing observations of student learning.

Disadvantages: This method requires planning, preparation and may be time-consuming during class time.

T. K. Rhodes and S. Nathenson-Mejia *Anecdotal Records: A Powerful Tool for Ongoing Literacy Assessment*, Reading Teacher, v45 n7 p502-09 Mar 1992

8. ConcepTests

Conceptests are a technique used where the instructor asks questions about key concepts and offers students several possible answers. Students are asked to select an answer and to indicate immediately, either by show of hands or by clicker, the answer selected. If the majority of the class has not mastered the concept, students are then asked to discuss with their neighbor the reasons supporting their choice. A second assessment is given by the instructor to re-assess knowledge.

Example:

Advantages: This classroom assessment works well in large classes. Students require little training for Conceptests. It takes minimal class time to perform the tests and to analyze results.

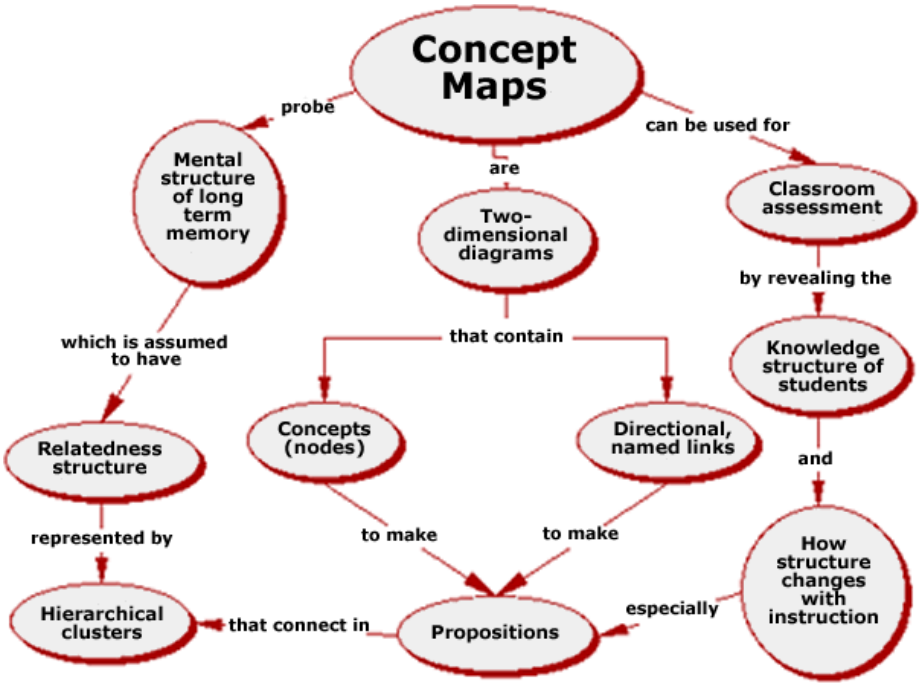
Disadvantages: Formulating the questions and possible answers for the Conceptests can take time initially. There is a cost involved in the clicker system.

http://www.flaguide.org/cat/contests/contests1.php

9. Concept Maps

Concept Maps are a visual tool allowing students to see the relationships between general and specific concepts. Concepts are given in a hierarchical design, with links between defining the nature of the relationships.

Example:



Source: http://www.flaguide.org/cat/conmap/conmap2.php

Advantages: Effective for assessing students' understanding of complex relationships.

Disadvantages: Instructor prep time can be significant for creating fill-in Concept Maps.

See also: Flowcharts or Diagrams

http://www.flaguide.org/cat/conmap/conmap1.php

http://classes.aces.uiuc.edu/ACES100/Mind/c-m2.html

10. Quizzes or Exams

These are locally developed instruments designed by faculty to measure knowledge in single or multiple components of a course.

Advantages: The content is easily modified to adapt to specific outcomes. Results are meaningful for both student evaluation and learning outcomes. Embedding Learning Outcomes into the quiz or exam is uncomplicated. Feedback may be rapid.

Disadvantages: Creating quizzes or exams may be time-consuming. Determining reliability and validity require extensive knowledge in measurement.

http://www.apa.org/ed/eval_strategies.html

11. Rubrics

A rubric is a scale designed for scoring student work against a pre-defined set of criteria. A rubric is typically in table format with two or more criteria and two or more levels of performance to be measured.

Analytical rubrics specify individual criteria and evaluate these standards independent of one another.

Holistic rubrics measure performance across multiple factors as a complete product.

Advantages: Assessment is objective and consistent. Rubrics clearly document and communicate expectations.

Disadvantages: Using rubrics may be limiting to student creativity as students strive to follow a predefined outline. Rubrics are time-consuming to create.

http://jonathan.mueller.faculty.noctrl.edu/toolbox/rubrics.htm

http://www.ion.illinois.edu/resources/pointersclickers/2004_03/benefits.asp

12. Essays

Essays are a written evaluation of a topic utilized to demonstrate a student's ability to plan, research, analyze, organize and synthesize information. Students develop stronger communication skills through essay writing.

Advantages: Effective for assessing students' understanding of multiple concepts.

Disadvantages: Grading is time-consuming.

http://www.apa.org/ed/eval_strategies.html

13. Case Studies

Case studies are actual issues and problems that students analyze to formulate alternative solutions for the situations.

Numerous case studies in various disciplines have been developed by academic institutions and are available for purchase and use by other schools.

Advantages: Case studies demonstrate analytical and synthetic thinking well. Also, students benefit from relating other knowledge to topic.

Disadvantages: The learning experience is dependent on student knowledge from multiple areas.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Case%20Study

14. Problem Solving

Problem Solving uses the same approach as Case Studies, but may leave more developmental problem solving to the student. For instance, the student must develop the experiment or tests to obtain data.

Advantages: This technique displays analytic and synthetic thinking well and is authentic if real world situations are used.

Disadvantages: Problem solving assessment is difficult to grade due to multiple methods and potential multiple solutions.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Case%20Study

http://www.ruf.rice.edu/~lane/rvls.html

15. Speech

Oral speech is a method used to emphasize a student's organizational and verbal communication skills. Students may be required to analyze an issue or situation and verbally present the findings or students may be asked to memorize passages to recite verbatim.

Advantages: Students improve skills in public speaking and organization.

Disadvantages: Some students may be insecure about public speaking.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8b.htm

http://serc.carleton.edu/NAGTWorkshops/assess/oralpresentations.html

16. Oral Interview

An oral interview provides a portrait of a student's understanding about a specific concept or set of related concepts. The interview may consist of a question and answer session or a task or problem-solving exercise.

Advantages: Appropriate for all disciplines.

Disadvantages: Several hours may be required to develop a reliable questions or problem sets. Interviews are best used when the student has developed a comfortable relationship with the professor.

http://www.colorado.edu/pba/outcomes/ovview/mwithin.htm

17. Debate

A debate is an oral speech contest between competing sides about a specific topic or proposition. Debates increase student abilities in knowledge, speaking skills, reasoning skills and analysis.

Advantages: Students are required to organize thoughts and formulate clear and concise arguments in a short period of time. Depending upon the number of students involved, the debate process may emphasize teamwork.

Disadvantages: Students from collective cultures may be uncomfortable with public displays of disagreement.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8b.htm

http://www.apa.org/ed/eval_strategies.html

18. Product Creation

Product creation requires the student to construct a tangible product. Students exhibit knowledge and practical skills required for the processes and outputs.

Advantages: Students have the opportunity to demonstrate employability.

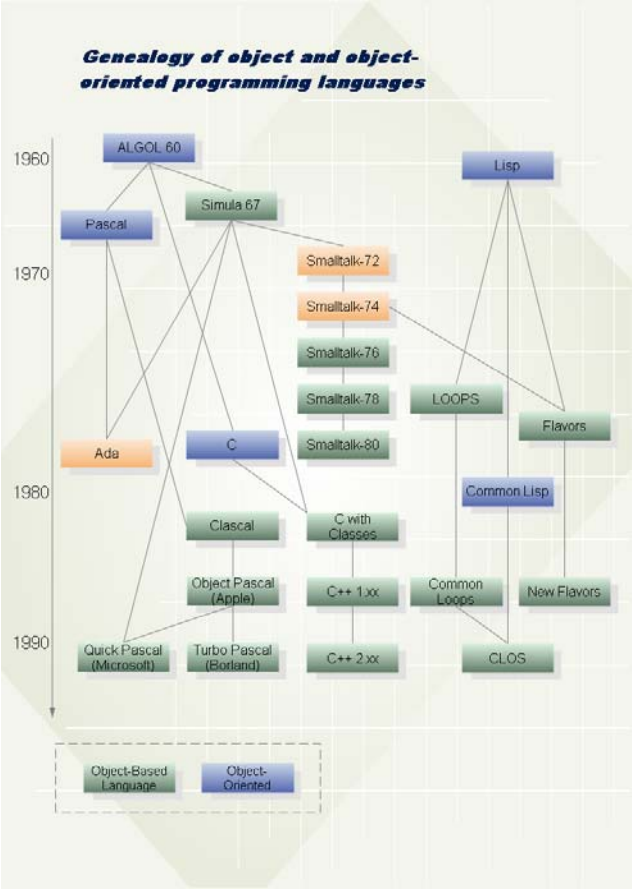
Disadvantages: Colleges may be limited in resources available for product creation.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8b.htm

19. Flowchart or Diagram

A flowchart is a visual or graphical representation, primarily through the use of symbols, of the logic or sequence of steps in a process, operation, function, or activity. Students must recall information and also analyze and synthesize organization and structure to develop systematic steps within the process.

Example:



Source: http://www.edrawsoft.com/flowchart-examples.php

Advantages: Effective for assessing student understanding of complex relationships.

Disadvantages: Instructor preparation may be time consuming to create complex outline of flowcharts.

See also: Concept Map

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Case%20Study

20. Team Project

Team projects are collaborative projects produced to cover concepts in one course, multiple courses, such as learning communities, or community projects, such as service learning.

Advantages: Appropriate for assessing students' knowledge of multiple concepts, as well as multiple levels of understanding and application.

Disadvantages: May be difficult to assess individual student involvement. Additional time may be required due to collaboration with faculty from other disciplines.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Case%20Study

http://www.cpcs.umb.edu/partners_projects/partners_projects_collaborations.htm

21. Portfolios

Portfolios are collections of students work that demonstrate the progress and level of learning that occurs over a period of time. The variety of work maintained in the portfolio illustrates multiple levels of learning.

Advantages: Analyzing a portfolio of work allows the faculty to assess a broad spectrum of knowledge at one time. Also, it allows for assessment of several learning objectives simultaneously. Portfolios are useful for a number of disciplines. Portfolios are easily adaptable to measuring different levels of assessment (e.g. course, program, general education).

Disadvantages: May be labor-intensive to assess at the end of a term or program. Depending upon the course or program, portfolios may require physical storage space for hard copies.

http://www.provost.wisc.edu/assessment/manual/manual2.html#a4

22. Performances

A performance is an execution of an action or artistic work. Performances emphasize what the student is able to do. Students receive valuable practical experience through active learning.

Advantages: Performances are adaptable. They promote student self-assessment. Students have the opportunity to demonstrate employability.

Disadvantages: Preparation and assessment for performances can be time-consuming. Students who are insecure may be dissuaded from participation. Depending upon the discipline assessed, this method may require extensive training of reviewers.

http://www.austincc.edu/oiepub/pubs/effectiveness/iumanual.pdf p 24

23. Capstone Project

A Capstone project measures student achievement of a broad knowledge base derived from participation in a program or a specific series of courses.

Advantages: Capstone projects are cumulative and integrative. Assessment of projects provides a setting for department or discipline-specific dialogue.

Disadvantages: Capstone projects can be labor-intensive. Coordination across the departments or disciplines may be challenging.

http://www.colorado.edu/pba/outcomes/ovview/mwithin.htm

24. Reflective Self-Assessment Essay

Students are asked to reflect on their college experiences. They must critically assess their academic growth and development in essay form, providing substantiation for their positions. When used in combination with Student Portfolios, students can observe development and document progress thoroughly.

Advantages: Student perspective is authentic.

Disadvantages: Reflective Self-Assessment is an indirect method of assessment.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Case%20Study

25. Satisfaction or Perception Surveys

Student satisfaction or perception surveys are used to gather data about student priorities and satisfaction. Surveys can be locally created or commercially standardized. Some standardized surveys allow for partial customization to allow the department or school to collect specialized data.

Examples: CCSSE and NSSE on student engagement, Noel-Levitz SSI (Student Satisfaction Inventory), CSEQ College Student Experiences Questionnaire

Advantages: For commercially developed surveys, scores are immediate and data are compared to student populations nationwide.

Disadvantages: Usually the college-wide instruments such as CCSSE are administered not for class-level feedback, but for college-level feedback; therefore, it is hard to use these surveys for class-based review of your own students. It is time consuming to generate questions for locally developed surveys.

See also: Exit Interview

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Case%20Study

http://www.mtsac.edu/administration/research/pdf/tips/ResearchTips%20v1n1%20designing%20surveys.pdf

26. Licensing Exams

Many vocational careers require students to pass licensing exams to enter a specific field of work. Sample licensing exams are available for many professional licenses.

Advantages: Students see probable outcome of their preparation. Sample scores are useful for assessing areas of student strength and weakness, in order to modify and improve instruction.

Disadvantages: Low scores on sample exams may disillusion students.

http://online.bakersfieldcollege.edu/courseassessment/Section_4_Assessment_Tools/Section4_8Toolslinks.htm#Licensing%20Exams

27. Standardized Tests

Standardized tests are assessments created and tested under controlled conditions to determine the level of learning acquired. Student competencies are measured and compared to national standards.

Advantages: Benefits include broad public usage and ease of data comparison. Results demonstrate external validity. Recent high-school graduates may have familiarity with the format of standardized tests.

Disadvantages: Unlike locally-developed quizzes or exams, standardized tests do not offer the flexibility of customization to various goals or outcomes. Faculty may be unable to clearly determine where student succeed and fail.

http://www.provost.wisc.edu/assessment/manual/manual2.html#a3

28. Exit Interviews

Exit Interviews ask students to reflect upon student learning and their educational experiences. Students are asked about instructional approaches, classroom environments and perceptions of assignments that best encourage student learning.

Advantages: Provides authentic and immediate feedback useful for assessing program improvement. Interaction with students may provide richer data collection. Interviews allow for clarification and depth of inquiry.

Disadvantages: Best if used in conjunction with other assessment tools.

See also: Satisfaction or Perception Surveys

http://www.skidmore.edu/administration/assessment/hbmethods.htm#indirect

29. Focus Groups

Focus groups are interactive discussions among a small pool of participants. Students are asked about attitudes towards their educational experience.

Advantages: Focus groups allow for in-depth inquiry, clarification, and follow-up on issues. Useful when combined with quantitative analysis for a broad understanding of issues.

Disadvantages: Data is indirect. Assembling groups of students may be challenging due to scheduling differences. Focus group data may be biased. Focus group moderator must be properly trained to address the group. Requires additional personnel to record and/or transcribe responses.

http://www.mtsac.edu/administration/research/pdf/tips/ResearchTips%20v1n3%20focus%20groups.pdf

30. Pre-Post Assignment/Test

At the onset of a course, an assignment or test is administered to measure the baseline level of understanding of one or more concepts. After learning occurs, a similar assignment or test is given to determine the level of learning.

Advantages: Pre-test results offers direction for group learning. Provides immediate feedback, if desired.

Disadvantages: Possible tendency to teach to the post test or assignment.

http://www.pvc.maricopa.edu/AI/documents/PrePost.doc

APPENDIX B: 5-COLUMN MODEL

Mt. San Antonio College
Discipline/Department: _____ Date: _____
Recorded by SLO Coordinator: _____

Student Learning Outcomes (SLOs) Assessment Model: The purpose of this assessment process is to improve student learning outcomes.

College Mission: The mission of Mt. San Antonio College is to welcome all students and to support them in achieving their personal, educational, and career goals in an environment of academic success.

Mission & Goals	Intended Outcome(s)	Means of Assessment and Criteria for Success	Summary of Data Collected	Use of Results

APPENDIX C: SLO CHECKLIST

5-COLUMN MODEL		e-PIE	CRITERIA	Does Not Meet Criteria	Meets Criteria
1	**MISSION AND GOALS**		□ the outcome is tied to the college mission and the unit/program goal, if applicable		
2	**INTENDED OUTCOME(S)**	**PLAN tab:** SLO/AUO/SA Related Goals	□ indicates course- or program-level assessment □ aligns with department goals □ is reasonable given the ability of the students □ states what students will know, do, think, or feel □ is measurable (can be observed or tested) □ is central to the course/program		
3	**MEANS OF ASSESSMENT/ CRITERIA FOR SUCCESS**	**PLAN tab:** Means of Assessment Assessment Method Criterion Schedule	**Means of Assessment:** □ identifies specific assessment method category (course embedded assessment, test, portfolio, standardized test, survey, etc.) for the outcome □ details the assessment method used to measure the outcome **Criteria for Success:** □ establishes minimum expected score for success at achieving outcome □ quantifies (%, fraction or actual number) of students who are expected to meet minimum score □ indicates consideration of alternate data (previous SLO assessment effort(s), external reports), if available (optional) □ establishes the minimum score for any sub-categories within the outcome, if applicable **Schedule:** □ specifies the time frame in which outcome will be assessed □ specifies who will administer the assessment **Evaluation:** □ identifies evaluator(s) □ specifies evaluation process □ attach relevant document(s), if applicable		
4	**SUMMARY OF DATA**	**SUMMARY OF DATA tab**	□ addresses the means of assessment and criteria for success statement in the Means of Assessment/Criteria for Success section above □ reports the actual results and compare with the number (%, fraction, actual number) originally expected to meet the minimum score □ includes additional data for sub-category (include comparisons with any minimum sub-scores) □ highlights key findings from the data, if applicable		
5	**USE OF RESULTS**	**SUMMARY OF DATA tab:** Use of Results	□ aligns with the summary of data in the Summary of Data section above □ uses present-continuous or past tense □ reports what the department/unit members have done or are doing as a result of the findings □ identifies who has made or is making the changes □ indicates the time frame for the changes		

APPENDIX D: AUO CHECKLIST

5-COLUMN MODEL		e-PIE	CRITERIA	Does Not Meet Criteria	Meets Criteria
1	**MISSION AND GOALS**		□ the objective is tied to the college mission and the unit/program goal, if applicable		
2	**INTENDED OBJECTIVE(S)**	**PLAN tab:** SLO/AUO/SA Related Goals	□ is current □ aligns with department goals □ is reasonable given the scope of the experience □ states that the unit will provide, improve, decrease *or* that the clients will understand, be satisfied with, receive □ is measurable (can be observed or tested) □ is central to the department		
3	**MEANS OF ASSESSMENT/ CRITERIA FOR SUCCESS**	**PLAN tab:** Means of Assessment Assessment Method Criterion Schedule	**Means of Assessment:** □ identifies specific assessment method category (focus group, survey, etc.) for the objective □ details the assessment method used to measure the objective **Criteria for Success:** □ establishes minimum expected score for success at achieving objective □ quantifies (%, fraction or actual number) of clients who are expected to meet minimum score □ indicates consideration of alternate data (previous AUO assessment effort(s), external reports), if available (optional) □ establishes the minimum score for any sub-categories within the objective, if applicable **Schedule:** □ specifies the time frame in which objective will be assessed □ specifies who will administer the assessment **Evaluation:** □ identifies evaluator(s) □ specifies evaluation process □ attach relevant document(s), if applicable		
4	**SUMMARY OF DATA**	**SUMMARY OF DATA tab**	□ addresses the means of assessment and criteria for success statement in the Means of Assessment/Criteria for Success section above □ reports the actual results and compare with the number (%, fraction, actual number) originally expected to meet the minimum score □ includes additional data for sub-category (include comparisons with any minimum sub-scores) □ highlights key findings from the data, if applicable		
5	**USE OF RESULTS**	**SUMMARY OF DATA tab:** Use of Results	□ aligns with the summary of data in the Summary of Data section above □ uses present-continuous or past tense □ reports what the department/unit members have done or are doing as a result of the findings □ identifies who has made or is making the changes □ indicates the time frame for the changes		