

Student Learning Outcomes

San Mateo Community College



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Section 1 Introduction

Welcome to a workshop designed to introduce faculty to student learning outcomes (SLOs). The purpose of this workshop is to make developing SLOs possible and practical in any course or program. Good assessment requires faculty with expertise and resources to measure and report learning in a variety of courses, under diverse conditions, about students with varied abilities and levels of academic engagement.

Higher education faculty are hired for their discipline expertise. Training in pedagogy and assessment often occurs on the run. Many of us emulate the most effective faculty from our own college experience. But assessing student learning is not new to faculty; we do this every semester as we evaluate student work. However, meeting the assessment expectations delineated in the new accreditation standards requires conventions beyond typical grading. The good news is that assessment practices can make student evaluation more meaningful, benefit your teaching, and improve student learning. (see Appendix A)

Campuses and classroom sections may require different strategies to accomplish the same outcomes. This means that faculty must be both discipline experts and skilled assessment practitioners. (see Appendix B) Throughout this workshop, we are going to model assessment practices in the same way that you might use them in your classroom. This means we have expectations for your involvement and work in the training, and you should have expectations for those training you. In the end, you will be asked to provide feedback to improve the training and determine how the materials can be improved.

Getting Started

Faculty have reported that the hardest aspect of writing SLOs is simply getting something on paper.

- ❖ REALIZE –you have been doing this all along, operating from intuitive and professional experience; the task now is to communicate your criteria.
- ❖ As the expert in this discipline and course, begin by thinking about the 5-7 most important things a student should leave your class being able to DO.
- ❖ Spend 15 minutes writing down words that express knowledge, skills, or values that integrate the most important aspects of your class.
- ❖ Use active verbs to craft sentences that are clear and measurable.
- ❖ Share these draft SLOs with other faculty to sharpen the focus.
- ❖ Compare the SLO drafts with
 - course outlines
 - core concepts articulated by professional organizations
 - articulation and prerequisite agreements as indicators of external expectations
- ❖ Put draft SLOs in the syllabus to get student feedback and clarify perceptions
- ❖ Take the Angelo and Cross Teaching Inventory Test online to see if what you are teaching correlates with what you value:
<http://www.uiowa.edu/~centeach/tgi/index.html>

The essence of student learning outcomes lies in focusing on the results you want from your course rather than on what you will cover in the course. Ask yourself how you will know when you have accomplished those outcomes.

- ❖ The next step is to measure these outcomes—to assess your work and theirs.

The loop is closed by redrafting SLOs, refining teaching techniques, and continuously improving learning outcomes for Faculty Training on Assessment at San Mateo Community College

By the end of this workshop, participants should be able to:

SLO 1 Draft SLOs for a course or student services program.

- Incorporate at least two of the domains [cognitive, psychomotor, affective] into the draft outcomes.
- Create student learning outcomes consistent with course teaching goals.
- Construct a set of student learning outcomes appropriate for the course and modified through faculty dialogue.

SLO 2 Prepare for Assessment

- Describe assessment data and selection of tools.

SLO 3 Coach another faculty member to write SLOs.

(see Appendix C American Association of High Education Principles of Good Practice for Assessing Student Learning)

Background Survey



No longer
What did we cover?
or
What did we teach?

But what did the student learn?

What can students do at the end of the course that they couldn't do at the beginning?

How do you know?



The challenge is measuring the gap between the *planned* curriculum, the *taught* curriculum and the *learned* curriculum (Peter Ewell).

A Shift in
Perspective . . .



Writing Student Learning Outcomes (SLOs)

Learning outcomes clearly state what a student is able to DO at the completion of a course or student services program.

- ❖ Focus on what the student can do.
- ❖ Use active verbs.
- ❖ Include a measurable expectation.
- ❖ Share the outcomes with your students.
- ❖ Modify as you learn from experience.



Learning outcomes provide a focus and a standard for the classroom or the student services program.

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

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

How do learning outcomes differ from course objectives or course goals?

Student learning outcomes build upon, but are different from, course objectives and course goals because they represent a new perspective.

Objectives	Outcomes
Objectives represent valuable skills, tools, or content (nuts and bolts) that enable a student to engage a particular subject.	SLOs represent overarching products of the course.
Objectives focus on content and skills important within the classroom or program; what the staff and faculty will do. Often termed the input in the course.	Outcomes express higher level thinking skills that integrate the content and activities and can be observed as a behavior, skill, or discrete useable knowledge upon completing the class.
Objectives can often be numerous, specific, and detailed. Assessing and reporting on each objective for each student may be impossible.	An assessable outcome is an end product that can be displayed or observed and evaluated against criteria.

Goals reflect the targets for a course or program. Goals are where you want to go, objectives are how you get there, and outcomes are proof that you have arrived.

“Outcomes demonstrate an understanding and application of a subject beyond the nuts and bolts which hold it together; objectives represent the nuts and bolts.” (BC Chemistry Prof).

Course Goal – the target for the course

The goal of this general art course is to cultivate a sense of aesthetic significance through analysis of problems and interpretations as they apply to a variety of disciplines

The goal of this general education biology course is to help students acquire and retain relevant biologic knowledge/information, teach them to think/apply this knowledge, and stimulate them to continue learning in the field.

The goal of this nutrition course is to prioritize key nutrition behaviors, identify health and nutrition needs, and integrate these behaviors into health interventions, educational training, and policy.

Course Objectives – the specific teaching objectives usually detailing course content and activities. (see examples for the nutrition course above)

Review nutritional recommendations and components.

Discuss differences in nutritional requirements associated with sex, age, and activity.

Describe causes and consequences of nutritional problems.

Explain complications of underlying physiologic conditions (e.g. diabetes & malabsorption).

Identify key factors involved in correcting nutritional behaviors.

Describe resources and strategies to treat nutritional disorders.

Course SLO – At the end of this nutrition course, a student will be able to analyze a documented nutritional problem, determine a strategy to correct the problem, and draft a nutritional policy addressing the broader scope of the problem.

SLO or Objective

The statements below were written for programs and courses. Analyze the statements to determine whether they goals, objectives, or student outcomes. Write G for goals, OB for objectives and SLO for student learning outcome.

	(Engineering course) This course introduces senior engineering students to design of concrete components of structure and foundation and integrate them into overall design structures.
	(History course) The student is able to function in teams.
	(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.
	(Geography course) This course will develop perspectives on GIS for representing data, information, knowledge – interplay among reality, database, and map display.
	(Epidemiology course) Given a scenario concerning a specific population, define and assess the health status of that population and identify factors influencing the use of health services.
	(Ecology course) Critically review the scientific literature, synthesize the findings across studies, and make appropriate ecological recommendations based on current knowledge.
	(Sociology course) Students will understand that individuals (and their families) must be regarded as being unique due to multicultural issues and other variables.
	(Communication course) We will cover key issues in contemporary mass media, with an emphasis on the nature of media competition, entertainment and news, movies, television, newspapers and the Internet.
	(Immunology course) This course will provide students with a medically relevant foundation of knowledge regarding the components and basic principles of the immune system and the vocabulary and language of immunology.
	(Math course) Given data students will analyze information and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content.

(see Appendix D)

Evaluating SAMPLE SLOs

Critique the following SLOs. Consider the SLO from the perspective of the faculty member teaching and assessing the course.

Upon completing this course or program students will:

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

2. Design experiments and interpret data according to the scientific method in order to evaluate a hypothesis. This includes the ability to: (a) approach the scientific method in a variety of ways; (b) formulate questions; (c) design experiments that answer the questions; and (d) manipulate and evaluate the experimental data to reach conclusions.

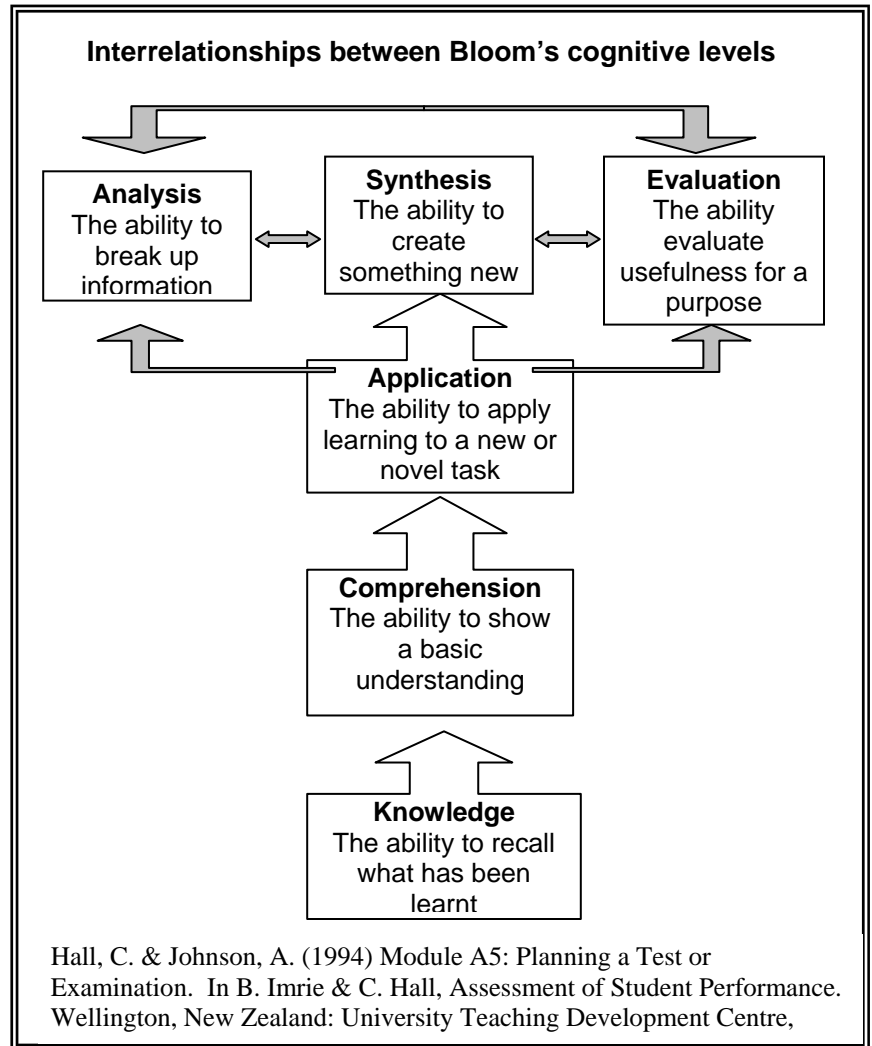
3. Faculty and staff will demonstrate knowledge of disabilities and accommodations and services available for students in the DSP&S program.

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

5. Demonstrate social responsibility.

Expanding the Definition of SLOs Cognitive, Psychomotor, Affective Domains

- ❖ Bloom (1948) developed classifications of intellectual behavior and learning in order to identify and measure progressively sophisticated learning.



- ❖ Three domains of learning are recognized:
 - the cognitive domain ([Bloom's Taxonomy, 1956](#)) defining knowledge classification
 - the psychomotor domain (Gronlund, 1970; Harrow, 1972; Simpson, 1972) defining physical skills or tasks classification
 - the affective domain (Krathwhol, Bloom, and Masia, 1964) defining behaviors that correspond to attitudes and values
- ❖ Student learning outcomes should address relevant outcomes for each of these domains but must be appropriate to the course.
- ❖ Affective outcomes tend to be the hardest to articulate initially but often represent the outcomes most closely related to deeper thinking and life-long learning.



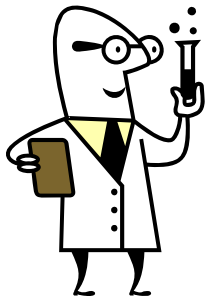
Cognitive Domain

Learning Outcomes Related To Knowledge

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

Basic
Knowledge
Level

More Sophisticated
Higher Level Thinking
Critical Thinking



Psychomotor Domain

Learning Outcomes Related To Skills

Observe	Model	Recognize Standards	Correct	Apply	Coach
Students translate sensory input into physical tasks or activities.	Students are able to replicate a fundamental skill or task.	Students recognize standards or criteria important to perform a skill or task correctly.	Students use standards to evaluate their own performances and make corrections.	Students apply this skill to real life situations.	Students are able to instruct or train others to perform this skill in other situations.
Hear Identify Observe See Smell Taste Touch Watch *Usually no outcomes or objectives written at this level.	Attempt Copy Follow Imitate Mimic Model Reenact Repeat Reproduce Show Try	Check Detect Discriminate Differentiate Distinguish Notice Perceive Recognize Select	Adapt Adjust Alter Change Correct Customize Develop Improve Manipulate Modify Practice Revise	Build Compose Construct Create Design Originate Produce	Demonstrate Exhibit Illustrate Instruct Teach Train

Basic Knowledge
 Basic Skills
 Level

More Sophisticated Skills
 Higher Level Abilities
 Critical Understanding of Performance



Affective Domain

Learning Outcomes Related To Attitudes, Behaviors, and Values

Receiving	Responding	Valuing	Organizing	Characterizing
Students become aware of an attitude, behavior, or value.	Students exhibit a reaction or change as a result of exposure to an attitude, behavior, or value.	Students recognize value and display this through involvement or commitment.	Students determine a new value or behavior as important or a priority.	Students integrate consistent behavior as a naturalized value in spite of discomfort or cost. The value is recognized as a part of the person's character.
Accept Attend Describe Explain Locate Observe Realize Receive Recognize	Behave Comply Cooperate Discuss Examine Follow Model Present Respond Show Studies	Accept Adapt Balance Choose Differentiate Defend Influence Prefer Recognize Seek Value	Adapt Adjust Alter Change Customize Develop Improve Manipulate Modify Practice Revise	Authenticate Characterize Defend Display Embody Habituate Internalize Produce Represent Validate Verify

Elementary Values and Behaviors
 Inherited Value System
 Egocentric View

More Highly Developed Attitudes
 Well Thought-out Value System
 Higher Level Abilities to Identify and
 Articulate Others' Values

Student Learning Outcomes Checklist	Yes	No
Do the SLOs include active verbs?		
Do the SLOs suggest or identify an assessment?		
Do the SLOs address the expected level of learning for the course using Bloom's Taxonomy as a guideline?		
Do the SLOs address more than one domain (cognitive, psychomotor, and affective)?		
Are the SLOs written as outcomes rather than as objectives? <ul style="list-style-type: none"> • Language indicates an important overarching concept versus small lesson or chapter objectives. • Outcomes address what a student will be able to do at the completion of the course. • SLOs address student competency rather than content coverage. 		
Are the SLOs appropriate for the course? <ul style="list-style-type: none"> • Consistent with the curriculum document of record • Represents a fundamental result of the course • Aligns with other courses in a sequence, if applicable • Represents collegiate level work 		
Will students understand the SLOs?		
Comments or suggestions:		

As you talk to others about SLOs keep these things in mind:

- Each course and classroom has unique factors.
- Disciplines have unique language and culture.
- Cross disciplinary conversations are invaluable.
- Ultimately discipline-specific conversations best define competencies for students.
- Everyone is a learner when it comes to assessment.
- As professionals, we are guided by the principles of academic freedom.

Writing Student Learning Outcomes

Course Outcomes
Name a specific course
Are there any prerequisites for this course?
Does this course serve as a prerequisite for any other courses?
Course Purpose:

BRAINSTORM: In the boxes below briefly list words or descriptions of attitudes, skills, or knowledge that you would like your students to know or do as a result of this course or student services program.

Attitudes or values developed as a result of this course	
Skills or performance ability as a result of this course	
Knowledge and concepts they will have as a result of this course	

Draft Outcomes:

SAMPLES OF GOOD SLOS

Instructor number 3 Course NURS B6&B6L PEDIATRIC NURSING & LAB Outcomes

Upon completion of Nursing B6/Nurs B6L, students will be able to:

1. Integrate concepts of growth and development in the delivery of nursing care to pediatric clients.
2. Provide nursing care to pediatric clients/families:
 - formulating nursing care plans utilizing the nursing process
 - planning interventions based on concepts of normal physiology and pathophysiology and
 - evaluating nursing care plans following implementation
3. Manage delivery of care demonstrating critical thinking to problem solve, organize, and prioritize care for pediatric clients/families.
4. Integrate data derived from an understanding of the pathophysiology of the clinical problem, laboratory results, ancillary reports, and assessment of the client and clinical picture.
5. Differentiate between the child and the adult in regard to nursing approach in delivering care, recognizing signs and symptoms of illness, calculation and delivery of medications, and in planning, assessing and evaluating nursing care.
6. Adhere to the legal and ethical standards of nursing practice and principles related to the care of the pediatric client.

Instructor NUMBER 4 Course ACDV B195 ACADEMIC DEVELOPMENT WORD PROCESSING FOR STUDENTS WITH DISABILITIES

Outcomes

Using Microsoft Word or the current word processing program at Bakersfield College, students will:

1. Write a variety of documents, including a single-source research report on assigned topics or subject areas, and send a word processed file attached to an email message.
2. Use a mouse or adaptive equivalent to demonstrate moving the cursor to specific locations in a document, selecting specific text, and moving text to another location.
3. Change text characteristics, margins, justification, and line spacing within a document.
4. Design a document with specified formatted text, a picture, a table, and two columns.
5. Evaluate documents on a disk, determine which to delete or rename, and choose an effective method to do so.
6. Use experience from this course, including the knowledge of menus, icons, screen tips, and "Help" functions, to perform novel tasks in Word and other computer programs.

Searching Student Learning Outcomes in Google –yields 3,720,000 hits.

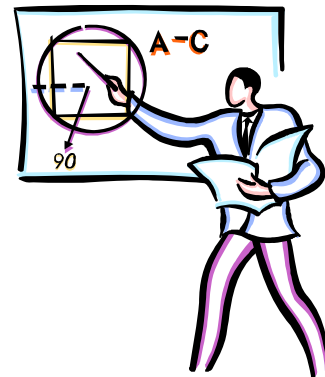
There are many examples of SLOs from a variety of disciplines are available at the following website

http://online.bakersfieldcollege.edu/courseassessment/Section_3_SLOs/Section3_8WritingSLOs.htm

(see Appendix E for examples of General Education Student Learning Outcomes)

“Classroom assessment is the purest form of assessment-for-improvement, because the information gleaned can be immediately used to improve teaching and learning ...the further away from the individual classroom you get, the harder it becomes to turn assessment data into useable information”

(Miller, 1997).



“Post secondary assessment done right must be rooted in the course and in the classroom, in the individual cells, to speak metaphorically, where the metabolism of learning actually takes place”

(Wright, 1999).

ENGLISH 2 Baseline Essay Assignment

This is an ungraded, first class day assignment to determine baseline writing skills.

1-2 pages, typewritten, double-spaced, in MLA format, titled with citations for quotes.

Purpose –

- **Allows the faculty to norm their grading**
- **Provides students with a cost free look at faculty expectations for writing**
- **Gives friendly mechanics reminders and checks MLA format**

Strategy –

- **No right or wrong answers**
- **Using the definition of critical thinking discussed today, examine the subject matter**
- **Take a position concerning the topic – determine a thesis**
- **Support your position**

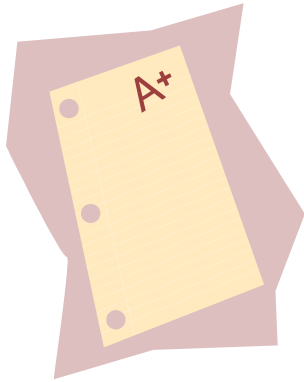
Assignment topic Fall 03– The California Gubernatorial Recall Election

Rubric for the Essay Title
4 – Inviting to the audience, addresses the topic, suggests a position, grammatically correct
3 – addresses the topic, suggests a position, grammatically correct
2 – addresses the topic, grammatically correct
1 - addresses the topic

Sample Student Titles

- The California Gubernatorial Recall Election
- California’s State
- The Unfair Shake
- California’s Historic Recall Election
- California Gubernatorial Recall: Two Questions and a Caboose of Colorful Candidates
- Recall of California Governor Gray Davis
- Porn Star Versus Producer
- State Recall
- The People May Have Spoken, But What Are They Saying?

But how does assessment fit with GRADING?



Paul Dressel (1983) has defined a grade as "an inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite material."

- *Grading Criteria*
 - *Primary Trait Analysis*
 - *Rubrics*

- *Variety & Authenticity*

Effective Grading Ideas

Walvoord, Barbara E. and Virginia Johnson Anderson. *Effective Grading: A Tool for Learning and Assessment*. San Francisco, CA: Jossey-Bass. 1998. 250 pp.

- **Make the course assignment-centered.** Walvoord and Johnson urge teachers to consider grading early in their planning. Do not ask, "What should I cover in this course?" but "What should my students learn to do?" (26).
- **Rethink the use of in-class time.**
- **Give students explicit directions for each assignment.**
- **Use grading scales or rubrics that are assignment-specific.** Construct a Primary Trait Analysis (PTA) scale referencing highly explicit criteria and develop rubrics based upon the PTA..
- **Make grading time-efficient.**

Defining Assessment

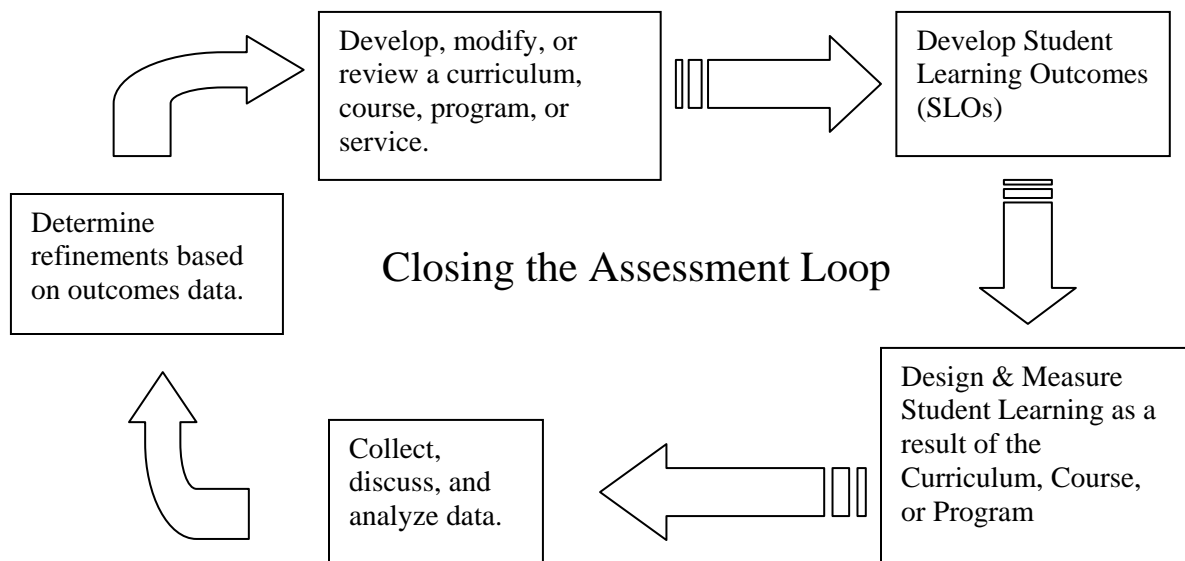
Assessment is an ongoing process aimed at understanding and improving student learning. It involves

- making our expectations explicit and public;
- setting appropriate criteria and high standards for learning quality;
- systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and
- using the resulting information to document, explain, and improve performance.

When it is embedded effectively within larger institutional systems, assessment can help us

- focus our collective attention,
- examine our assumptions, and
- create a shared academic culture dedicated to assuring and improving the quality of higher education.

(Angelo (1995) Defining (and Re-assessing) Assessment: A Second Try, AAHE Bulletin no. 48, p.7).



Assessment Inventory—What are you already doing?

Doing Assessment as if Learning Matters Most
(Angelo, 1999, AAHE Bulletin)

Ten Guidelines for Assessing as if Learning Matters Most

1. Engage actively – intellectually and emotionally in their academic work
2. Set and maintain realistically high, personally meaningful expectations and goals
3. Provide, receive, and make use of regular, timely, specific, feedback
4. Become explicitly aware of their values, beliefs, preconceptions, and prior learning, and be willing to unlearn when necessary
5. Work in ways that recognize (and stretch) their present learning styles or preferences and levels of development
6. Seek and find connections to and real world applications of what they are learning
7. Understand and value the criteria, standards, and methods by which they are assessed and evaluated
8. Work regularly and productively with academic staff
9. Work regularly and productively with other students
10. Invest as much engaged time and high quality effort as possible in academic work

Good Practice in Undergraduate Education:

1. encourages contact between students and faculty,
2. develops reciprocity and cooperation among students,
3. encourages active learning,
4. gives prompt feedback,
5. emphasizes time on task,
6. communicates high expectations, and
7. respects diverse talents and ways of learning.

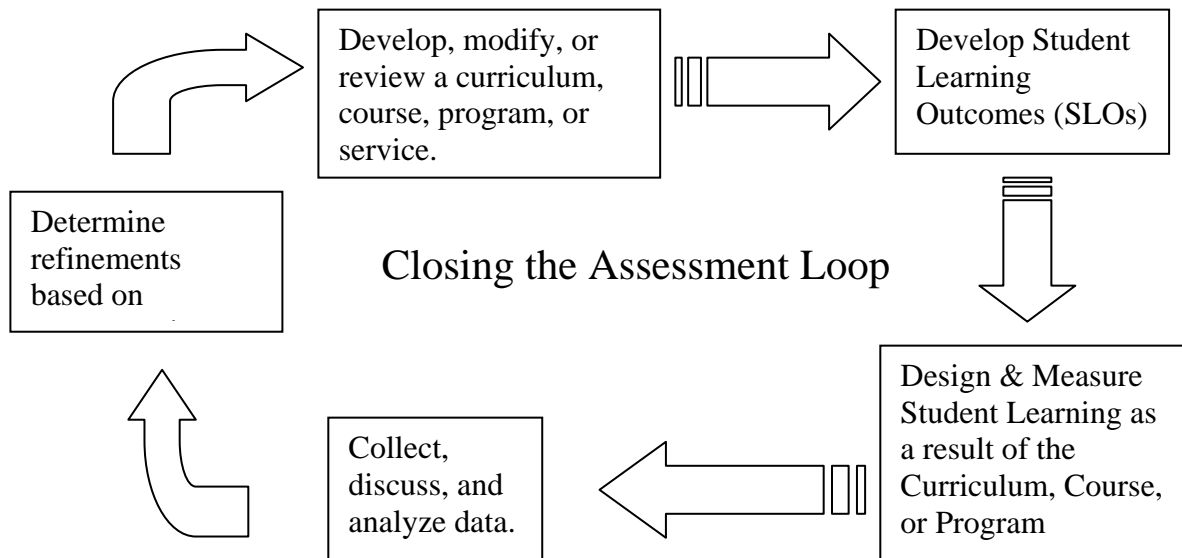
[The Seven Principles of Good Undergraduate Education](http://aahebulletin.com/public/archive/sevenprinciples1987.asp) by Chickering and Gamson (AAHE Bulletin March 1987)

<http://aahebulletin.com/public/archive/sevenprinciples1987.asp>

(see Appendix F for important points from new cognitive research and Appendix G for concepts related to a Learning Centered Classroom)

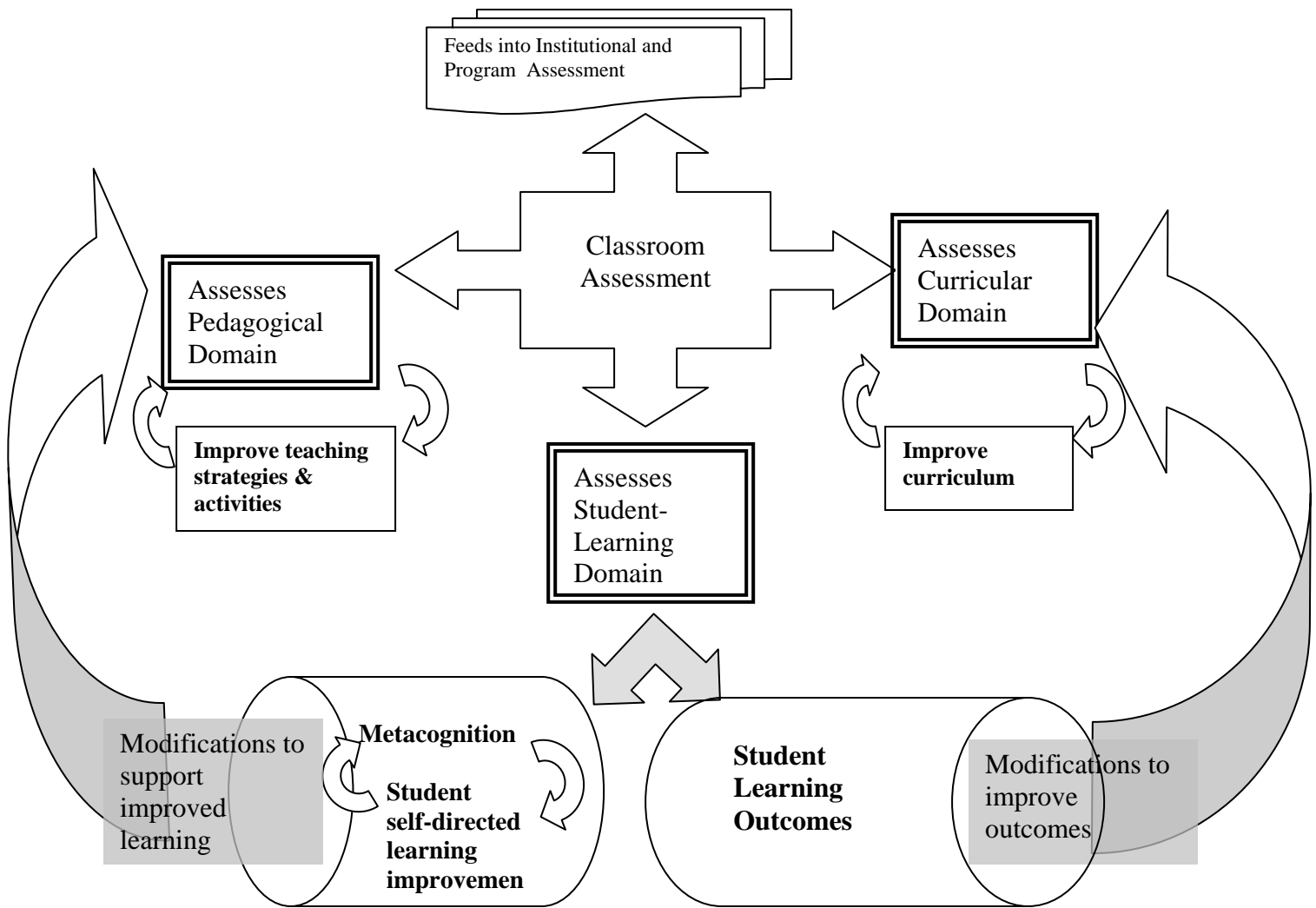
Assessing Student Learning Outcomes

1. Requires clearly focused SLOs.
2. Includes data from a variety of areas.
 - i. Assessing instruction involves:
 1. Student Metacognition
 2. Pedagogy
 3. Curriculum
 4. Success in Student Learning
 - ii. Assessing student services involves
 1. Activities
 2. Services
 3. Attitudes, perceptions and satisfaction
 4. Actual outcomes
3. Consists of a variety of data (direct and indirect, quantitative and qualitative) and methods.
4. Answers important questions and involves more than just accessible numbers or factoids.
5. Contributes to learning in the process of the assessment.
6. Closes the loop by using data to improve courses, curriculum, program, and services.



Assessment	Potential Tools
Student Metacognition	CATs, reflective papers, learning style tests
Pedagogy and Curriculum	CATs, surveys, faculty dialogue, Teaching Goals Inventory
Student Learning	Primary Trait Analysis, Rubrics, Homegrown locally developed assessments, Standardized Assessments
Services	Satisfaction surveys, homegrown or standardized assessments – LASSI (Learning & Study Strategies Inventory) , Noel-Levitz, CSSI, CCSEQ (Community College Student Experiences Questionnaire)

Figure 3 Domains and Pathways for Improvement Through Classroom Assessment



Student outcomes: At the end of this course you should be able to	Assessment
<ul style="list-style-type: none"> ❑ read a variety of materials critically to <ul style="list-style-type: none"> ○ identify a thesis ○ summarize important points ○ analyze main ideas 	Responsive writing assignments throughout the course
<ul style="list-style-type: none"> ❑ solve problems in a variety of settings by <ul style="list-style-type: none"> ○ working productively with others ○ contributing constructively to class discussion ○ thinking for yourself in oral presentations or debates ○ displaying openness to other viewpoints 	During class activities, particularly discussions and group projects
<ul style="list-style-type: none"> ❑ write papers that <ul style="list-style-type: none"> ○ develop a thesis ○ present coherent and logical claims ○ are organized with clear links between claims and support ○ are well developed with sufficient and relevant evidence ○ use standard American English correctly ○ make stylistic choices in persona, syntax, and diction ○ gauge the needs of and address a specific audience 	Papers
<ul style="list-style-type: none"> ❑ prepare an extended research paper that <ul style="list-style-type: none"> ○ develops a thesis ○ presents coherent and logical claims ○ is well organized with clear links between claims and support ○ is well developed with sufficient and relevant evidence ○ uses standard American English correctly ○ makes stylistic choices in persona, syntax, and diction ○ gauges the needs of and addresses a specific audience ○ shows evidence of ability to evaluate sources for reliability, credibility, and authority ○ credits sources appropriately and correctly 	Research Paper
<ul style="list-style-type: none"> ❑ present ideas and research in organized and engaging oral presentations that <ul style="list-style-type: none"> ○ express a thesis clearly ○ are well organized and developed ○ conform to time constraints ○ make stylistic choices in persona, syntax, and diction ○ gauge the needs of and addresses a specific audience ○ show evidence of ability to evaluate and incorporate sources for reliability, credibility, and authority 	Debate, group presentations, and culminating oral presentation of research.
<ul style="list-style-type: none"> ❑ display mental habits that show evidence of <ul style="list-style-type: none"> ○ questioning ○ analysis ○ synthesis ○ beliefs based on evidence ○ and ethical behavior in the academic community 	Discussion, spontaneous in-class writing, papers, and presentations.
<ul style="list-style-type: none"> ❑ assess your growth as a thinker and writer this semester using the criteria above: <ul style="list-style-type: none"> ○ read a variety of materials critically ○ solve problems in a variety of settings ○ write papers ○ prepare an extended research paper ○ present ideas and research in an organized and engaging oral presentation ○ display specific mental habits 	Final Paper

English 2 In-class Writing Rubric Name _____

Subject _____ **Date** _____

“The point of in-class writing is not simply to dazzle your instructor with what you know. Rather, the goal is for you to make connections, show relationships, develop themes, synthesize information, and draw conclusions based on your new knowledge and current understanding” (190).

Davis, Joe A., Martin, Margo L., and Charles D. Smires. *Research for Writers: Advanced English Composition*.

Dubuque, IA: Kendall-Hunt, 2002.

	Yes	No
Inviting title		
Margin on each side		
Easy to read		

Content	Sophisticated	Solid	Acceptable	Shaky
Response to question				
Thesis shows evidence of critical thinking and governs organization.				
Synthesis (connections, relationships, themes)				
Evidence to support synthesis and thesis				
Style and Correctness	Sophisticated	Solid	Acceptable	Shaky
Diction				
Syntax				
Mechanics				
Overall Responsiveness to Assignment	Sophisticated	Solid	Acceptable	Shaky

Points: _____/50

Student Learning Outcomes for Microbiology B16

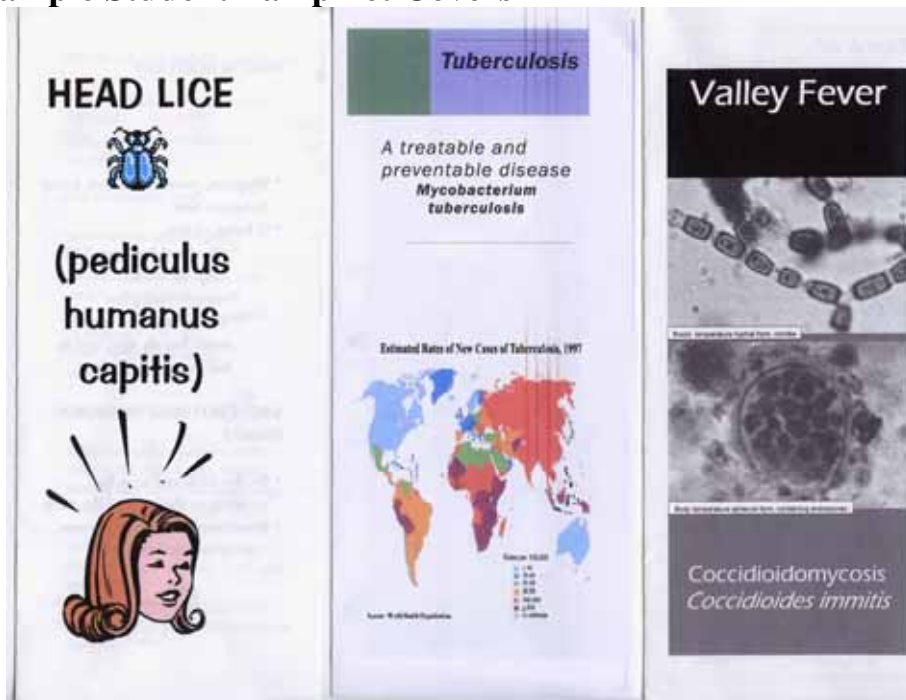
Domain	Specific Outcomes	Summative Assessment Method
Knowledge/ Cognitive	Following Completion of the Microbiology Course (B16) students will be able to:	
Cell Theory	Use examples of infections, treatment, and epidemiologic control to compare and contrast the characteristics of prions, viruses, bacteria, protozoans, and multicellular parasites.	Final exam essay question
Microbial Interactions	Explain the dynamics of commensal and pathological relationships that occur between microbes and humans.	Take home case study question for final exam
Microbial Control	Evaluate methods of microbial control and apply the proper methods necessary when given a scenario.	Multiple choice questions on final exam
Microbial Metabolism	Briefly describe sample metabolic pathways found in microorganisms and their implications for food production and human disease.	Diagram labeled on final exam
Microbial Genetics	Summarize basic bacterial genetic principles and analyze implications for mutation, genetic recombination, and bacterial control.	Table completion on final exam
Immune Response	Articulate and diagram the role of the immune system in maintaining homeostasis, challenging infections, and fighting cancer.	Flow chart created by student on the final exam
Skills/ Psychomotor	Following Completion of the Microbiology Course (B16) students will be able to:	
Scientific Method Application	Apply the scientific method by stating a question; researching the topic; determining appropriate tests; performing tests; collecting, analyzing, and presenting data; and finally proposing new questions about the topic.	One team & one individual Senior Picnic & Unknown lab
Lab Safety Skills	Correctly perform microbiologic lab skills and display a habit of good lab practices which extends to relevant situations in the student's homes.	Components of labs used above
Attitudes and behavior/ Affective	Following Completion of the Microbiology Course (B16) students will be able to:	
Appraisal of microbiologic information	Retrieve, evaluate, and use microbiologic information regarding contemporary issues in the world and relevant to their everyday lives.	Project - Microbiologic Pamphlet or 3 D project

(see Appendix H Microbiology Course Matrix & L Course and Program SLOs Alignment)

Pamphlet Grading Rubric

Criteria	Inadequate (0-2 points)	Adequate (3-4 points)	Superior Work (5 points)	Total
Application to Microbiology	Topic of interest in class	Current topic and relevant to lay people	Important contemporary issue where education is essential	
Level of Information	Facts were stated	Facts were stated in a relevant way for the audience	Important information was imparted with references in an understandable and relevant manner, directed at a specific	
Layout and Grammar	Layout or grammar errors existed	No layout or grammar errors existed	Layout was inviting and creative; no grammar errors	
Information was displayed using art, graphs or tables	Art or graphs were included	Relevant art, graphs or visual data were used	Relevant art and data in precise and clear forms were presented with appropriate citations	
Content	Content covered basics	Content covered important information about symptoms, treatment, and prevention	Content covered the latest information about cases, locations, symptoms, treatment, and prevention	
Objectives	The objectives of the pamphlet were unclear	The were pamphlet objectives	The pamphlet objectives were clear and fully addressed	
Teamwork	The work appears to have been done individually	The work indicates the team cooperated	The work reveals close teamwork and full understanding by each individual	
References	References and art were not fully cited	References and art were all correctly cited	References and art were from exceptional sources, correctly cited, and useable by lay people	
Oral Presentation	The material was explained to the class	The team presented the information in an interesting manner	The team had an outstanding presentation using clear voices, eye contact, and great references	
Answering Class questions	The team had no questions	The team responded to questions	The team had extensive knowledge and ability in the subject area to field all questions or explain why they did not have answers	
Total Score				

Three Sample Student Pamphlet Covers



Contents of Valley Fever pamphlet

What is it?

Valley Fever, or Coccidioidomycosis, is an infection caused by a dimorphic fungus, *Coccidioides immitis*. It primarily affects the lungs, and when it affects the other parts of the body, it is called the disseminated form of Valley Fever.

The front of this pamphlet shows the two forms of the fungus. The top picture is the mold form, which grows in the soil. The hyphae, or thread-like structures, develop arthrospores that are barrel-shaped and highly infectious. The bottom picture is the form found in infected tissue. There are thick-walled spheres that can each contain several hundred endospores.

Contraction

Valley Fever is not a contagious disease, and cannot be spread from person-to-person. The arthrospores of the fungus become airborne when soil is disturbed and are inhaled by a healthy person, exposing them to the fungus. Anyone who lives in, visits, or travels through the endemic areas, where the fungus grows in the soil, is at risk of exposure.

Those most at risk of contracting the infection are those who are frequently exposed to the disturbed soil and dust, like workers in the agriculture, construction, and archeological fields. People who pursue recreational activities, such as mountain biking or driving ATVs in the desert, are also at increased risk of exposure.

Symptoms

Of those infected, only 40% develop symptoms.

- Fatigue
- Cough
- Chest pain
- Fever
- Rash
- Headache
- Joint aches

Diagnosis

Valley Fever is only suspected if the patient was exposed to the fungus in the endemic areas. The diagnosis can be confirmed by the following tests:

- Skin tests
- Chest x-ray
- Microscopic identification of fungal spherules in tissue
- Culture from infected body fluids or tissue samples
- Detection of antibodies in blood serum or body fluids

An x-ray image of an infected patient.

Treatment

Most patients with Valley Fever recover with no treatment and have life-long immunity. However, in more severe cases, treatments can include:

- Anti-fungal drugs, such as Fluconazole or Amphotericin B
- Surgical removal of cavities in the lung
- Surgical drainage of Valley Fever abscesses in bones or joints is also commonly performed.

Prognosis

Acute form: Patients experience only mild symptoms and will recover without further complications.
Chronic form: Patients with no immunological disorders have a good chance of recovery, but have the possibility of a relapse.
Disseminated form: Patients with this spreading form of the infection, many of whom may also have AIDS, have a less positive outcome. If left untreated, death is almost certain. With treatment, chances of survival increase slightly. Other possible complications include meningitis, skin lesions, and bone or joint damage.

Life Cycle

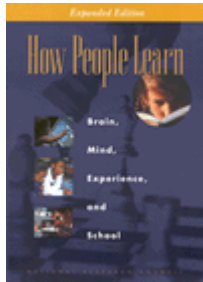
The fungus grows in thread-like structures, mycelia, that can break apart, and release arthrospores. The arthrospores can be carried by wind, or any similar disturbance. They are then inhaled into the lungs.

The diagram illustrates the life cycle of the fungus. It starts with Mycelia, which break apart into Arthrospores. These are inhaled into the lungs. In the lungs, they develop into Endospores, which then mature into Spherules. The spherules can then burst and release more arthrospores, completing the cycle.

In the lungs, the arthrospores change form. They become spherules, filled with immature endospores. After the spherules mature, they burst, releasing the endospores into the surrounding tissue. These endospores also develop into spherules, repeating this cycle. There is a possibility that endospores can travel to other parts of the body, where they will then mature, through the blood stream. This is a disseminated form of infection, and is more severe.

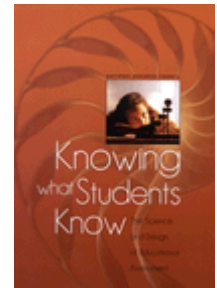
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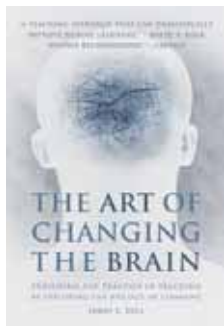
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A guide for developing assessment plans in the classroom based on Classroom Assessment Techniques by Angelo and Cross
http://www.ncspod.org/online_publications/cats.pdf

Assessing Student Learning in Community Colleges (2004) – an online course or downloadable workbook for various topics and hands-on work in assessment
<http://online.bakersfieldcollege.edu/courseassessment/>

California Assessment Institute – includes links, resources, and foundational documents for assessment implementation <http://www.cai.cc.ca.us>

California Master Plan For Education <http://www.sen.ca.gov/masterplan/>
<http://www.sen.ca.gov/masterplan/020909THEMASTERPLANLINKS.HTML>

Center for Student Success – contains sample assessments, SLOs, and projects from California Community Colleges <http://css.rpgroup.org/>

Getting Started with Learning-Centered Strategies links available at <http://www2.bc.cc.ca.us/tl/>

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The Case for Authentic Assessment.

Grant Wiggins - This article is based on materials that he prepared for the California Assessment Program.

WHAT IS AUTHENTIC ASSESSMENT?

Assessment is authentic when we directly examine student performance on worthy intellectual tasks. Traditional assessment, by contrast, relies on indirect or proxy 'items'--efficient, simplistic substitutes from which we think valid inferences can be made about the student's performance at those valued challenges.

Do we want to evaluate student problem-posing and problem-solving in mathematics? experimental research in science? speaking, listening, and facilitating a discussion? doing document-based historical inquiry? thoroughly revising a piece of imaginative writing until it "works" for the reader? Then let our assessment be built out of such exemplary intellectual challenges.

Further comparisons with traditional standardized tests will help to clarify what "authenticity" means when considering assessment design and use:

* Authentic assessments require students to be effective performers with acquired knowledge. Traditional tests tend to reveal only whether the student can recognize, recall or "plug in" what was learned out of context. This may be as problematic as inferring driving or teaching ability from written tests alone. (Note, therefore, that the debate is not "either-or": there may well be virtue in an array of local and state assessment instruments as befits the purpose of the measurement.)

* Authentic assessments present the student with the full array of tasks that mirror the priorities and challenges found in the best instructional activities: conducting research; writing, revising and discussing papers; providing an engaging oral analysis of a recent political event; collaborating with others on a debate, etc. Conventional tests are usually limited to paper-and-pencil, one- answer questions.

* Authentic assessments attend to whether the student can craft polished, thorough and justifiable answers, performances or products. Conventional tests typically only ask the student to select or write correct responses--irrespective of reasons. (There is rarely an adequate opportunity to plan, revise and substantiate responses on typical tests, even when there are open-ended questions). As a result,

* Authentic assessment achieves validity and reliability by emphasizing and standardizing the appropriate criteria for scoring such (varied) products; traditional testing standardizes objective "items" and, hence, the (one) right answer for each.

* "Test validity" should depend in part upon whether the test simulates real-world "tests" of ability. Validity on most multiple-choice tests is determined merely by matching items to the curriculum content (or through sophisticated correlations with other test results).

* Authentic tasks involve "ill-structured" challenges and roles that help students rehearse for the complex ambiguities of the "game" of adult and professional life. Traditional tests are more like drills, assessing static and too-often arbitrarily discrete or simplistic elements of those activities.

Wiggins, Grant (1990). The case for authentic assessment. *Practical Assessment, Research & Evaluation*, 2(2). Retrieved February 16, 2004 from <http://PAREonline.net/getvn.asp?v=2&n=2> .
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Adopted by the Academic Senate 10/22/03.

Bakersfield College Academic Senate Assessment Philosophy

Learning is more than simply acquiring knowledge; it involves mastery of subject matter, the application of that knowledge, discovery and utilization of resources, and solving of problems. The entire campus works together to support student growth and development for life long learning.

Assessment at Bakersfield College targets improving student learning through appropriate outcome measures and holds as its standard the AAHE Nine Principles of Good Assessment (see attached). Outcomes assessment not only monitors what and how well students learn, but it also measures the success of the institution in providing effective learning opportunities. The keys to the process are well-defined student learning outcomes and student support strategies implanted in an environment of high academic standards.

Outcomes assessment occurs in instructional, student services, library and other settings essential to student access, progress, learning, and success. An essential ingredient in Bakersfield College assessment is the emphasis on faculty-led, classroom-based assessment to ensure a direct focus on learning. The assessment of student outcomes is a curriculum matter, and Academic Senate has primary responsibility for establishing and maintaining the general standards for classroom assessment at Bakersfield College. Specific assessment standards and methods are the responsibility of individual departments and faculty members.

Overall, such an on-going student outcomes assessment process works to improve institutional effectiveness. Bakersfield College assessment will be based on valid, reliable, and relevant assessment procedures, generated through multiple measures to collect both quantitative and qualitative information, in an effort to improve courses, services, and programs. The data will provide evidence for curriculum reform, planning, resource allocation, organizational leadership, and staff and student development. Ultimately BC assessment will lead to institutional accountability and improvement of teaching and learning. The assessment process, however, is not a part of faculty evaluation, which is addressed separately in the KCCD Policy and Procedures and the CCA contract.

AAHE 9 Principles of Good Practice for Assessing Student Learning

1. The assessment of student learning begins with educational values. Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with and enacts a vision of the kinds of learning we most value for students and strive to help them achieve. Educational values should drive not only *what* we choose to assess but also *how* we do so. Where questions about educational mission and values are skipped over, assessment threatens to be an exercise in measuring what's easy, rather than a process of improving what we really care about.

2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time. Learning is a complex process. It entails not only what students know but what they can do with what they know; it involves not only knowledge and abilities but values, attitudes, and habits of mind that affect both academic success and performance beyond the classroom. Assessment should reflect these understandings by employing a diverse array of methods, including those that call for actual performance, using them over time so as to reveal change, growth, and increasing degrees of integration. Such an approach aims for a more complete and accurate picture of learning, and therefore firmer bases for improving our students' educational experience.

3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes. Assessment is a goal-oriented process. It entails comparing educational performance with educational purposes and expectations -- those derived from the institution's mission, from faculty intentions in program and course design, and from knowledge of students' own goals. Where program purposes lack specificity or agreement, assessment as a process pushes a campus toward clarity about where to aim and what standards to apply; assessment also prompts attention to where and how program goals will be taught and learned. Clear, shared, implementable goals are the cornerstone for assessment that is focused and useful.

4. Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes. Information about outcomes is of high importance; where students "end up" matters greatly. But to improve outcomes, we need to know about student experience along the way -- about the curricula, teaching, and kind of student effort that lead to particular outcomes. Assessment can help us understand which students learn best under what conditions; with such knowledge comes the capacity to improve the whole of their learning.

5. Assessment works best when it is ongoing not episodic. Assessment is a process whose power is cumulative. Though isolated, "one-shot" assessment can be better than none, improvement is best fostered when assessment entails a linked series of activities undertaken over time. This may mean tracking the process of individual students, or of cohorts of students; it may mean collecting the same examples of student performance or using the same instrument semester after semester. The point is to monitor progress toward intended goals in a spirit of continuous improvement. Along the way, the assessment process itself should be evaluated and refined in light of emerging insights.

6. Assessment fosters wider improvement when representatives from across the educational community are involved. Student learning is a campus-wide responsibility, and assessment is a way of enacting that responsibility. Thus, while assessment efforts may start small, the aim over time is to

involve people from across the educational community. Faculty play an especially important role, but assessment's questions can't be fully addressed without participation by student-affairs educators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, trustees, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for small groups of experts but a collaborative activity; its aim is wider, better-informed attention to student learning by all parties with a stake in its improvement.

7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about. Assessment recognizes the value of information in the process of improvement. But to be useful, information must be connected to issues or questions that people really care about. This implies assessment approaches that produce evidence that relevant parties will find credible, suggestive, and applicable to decisions that need to be made. It means thinking in advance about how the information will be used, and by whom. The point of assessment is not to gather data and return "results"; it is a process that starts with the questions of decision-makers, that involves them in the gathering and interpreting of data, and that informs and helps guide continuous improvement.

8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change. Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought.

9. Through assessment, educators meet responsibilities to students and to the public. There is a compelling public stake in education. As educators, we have a responsibility to the publics that support or depend on us to provide information about the ways in which our students meet goals and expectations. But that responsibility goes beyond the reporting of such information; our deeper obligation -- to ourselves, our students, and society -- is to improve. Those to whom educators are accountable have a corresponding obligation to support such attempts at improvement.

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SLO or Objective

The statements below were written for programs and courses. Analyze the statements to determine whether they goals, objectives, or student outcomes. Write G for goals, OB for objectives and SLO for student learning outcome.

G	(Engineering course) This course introduces senior engineering students to design of concrete components of structure and foundation and integrate them into overall design structures.
OB	(History course) The student is able to function in teams.
SLO	(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.
OB or G	(Geography course) This course will develop perspectives on GIS for representing data, information, knowledge – interplay among reality, database, and map display.
SLO	(Epidemiology course) Given a scenario concerning a specific population, define and assess the health status of that population and identify factors influencing the use of health services.
SLO	(Ecology course) Critically review the scientific literature, synthesize the findings across studies, and make appropriate ecological recommendations based on current knowledge.
OB	(Sociology course) Students will understand that individuals (and their families) must be regarded as unique individuals as professionals conduct their assessments and provide treatment. Multicultural issues should become one of the many variables that are considered during assessment and treatment
OB	(Communication course) We will cover key issues in contemporary mass media, with an emphasis on economics, government-press relations and broad cultural concerns, media as businesses, the nature of media competition, entertainment and news, movies, television, newspapers and the Internet.
G	(Immunology course) This course will provide students with a medically relevant foundation of knowledge regarding the components and basic principles of the immune system and the vocabulary and language of immunology.
SLO	(Math course) Given data students will analyze information and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content.

Comparison of General STUDENT LEARNING OUTCOMES for Instruction and Student Services at Mesa College

Proposed Instruction	Proposed Student Services
Critical Thinking: Ability to analyze problems, conceptualizes theses, develop arguments, weigh evidence, and derive conclusions.	Critical Thinking: Ability to define problem, identify solution and resolve.
Communication: Ability to articulate the critical thinking outcomes in writing and/or speaking or by other modes of communication.	Communication: Ability to articulate thoughts, goals, processes and make decisions.
Self-awareness and Interpersonal Skills: Ability to analyze one's own actions, to see the perspective of other persons, and to work effectively with others in groups.	Self-awareness and Interpersonal Skills: Ability to identify one's own needs, determine resources and access appropriate services.
Personal Actions and Civil Responsibility: Ability to understand one's role in society, take responsibility for one's own actions, make ethical decisions in complex situations, and participate actively in a diverse democracy.	Personal Actions and Civic Responsibility: Ability to take responsibility for one's own actions.
Global Awareness: Ability to articulate similarities and contrasts among cultures and times, demonstrating knowledge of and sensitivity to cultural pluralist values and awareness of global issues.	Global Awareness: Ability to become exposed and made aware of cultural values and issues.
Technological Awareness: Ability to understand the applications and implications of technology and to use technology in ways appropriate to the situation.	Technological Awareness: Ability to use various methods of technology.

Meeting the Student Learning Outcomes through Curriculum

Key Findings on Learning Research from NRC

1. Students come to class with pre-conceptions that must be engaged or they will fail to grasp new concepts and information, or they will learn new information for a test only to revert to preconceptions outside of class.
2. Students develop competence in an area when they have: (a) a deep factual knowledge, (b) understand the facts within a conceptual framework, and (c) organize knowledge so that they can retrieve and apply it.
3. Students that take control of their own learning, through a metacognitive approach monitoring their own goals and progress in achieving them, are able to achieve deep and permanent learning.
4. Assessment represents an essential component for improving teaching and learning but it must target proficiency of content and metacognitive skills.
5. An important role for assessment is timely, informative feedback to facilitate practice and acquisition of proficiency of skills and deep learning. Assessment should reveal the development of knowledge and skills to allow formative improvement, not just summative judgment, if it is to improve teaching and learning.
6. Technology represents a unique opportunity to engage knowledge and cognitive skills, and assess proficiency in an enriched environment.

Implementing Active Learning

- Collaborative learning
- Project-based learning
- Real-world learning
- Service learning
- Learning communities
- Learning support services

In the Learning-Centered Classroom

- Students take control of and think about their own learning.
- "Students literally build their own minds." (Cross)
- Students acquire mastery when they learn within a real-world framework.
- Students construct links between current and previous knowledge to develop long-term, deeper learning

To Improve Learning

Teachers can . . .

- *identify students' pre-existing misconceptions.*
- *deal with some subject matter (but not all) in depth through problem-based learning and case studies.*
- *link learning to previous knowledge and real life contexts.*
- *provide opportunities for collaborative and community work.*
- *use classroom assessment to improve teaching and learning.*
- *help students think about how they are learning as they learn*

Microbiology Course Matrix Identifying Course Learning Outcomes with Course Activities

Assignments	Student Learning Outcomes								
	Cell Theory	Microbial Interactio	Microbial Control	Microbial Metaboli	Microbial Genetics	Immune Respons	Scientific Method	Lab Safety Skills	Appraisal of info
Exam 1	X	X					X	X	
Exam 2	X	X	X	X				X	X
Exam 3	X	X	X	X	X	X	X	X	X
Final	X	X	X	X	X	X	X	X	X
Teams Case Studies		X	X				X		X
Gram Stain and Isolation Test	X			X			X	X	X
Lab Microscope	X							X	
Lab Culturing	X							X	
Lab Staining	X		X	X				X	
Lab Aseptic Tech	X	X	X					X	
Lab Survey of Microbes	X	X		X	X				X
Lab Media	X	X	X	X	X		X	X	
Lab Metabolism	X		X	X	X			X	
Lab DNA	X			X	X			X	X
Lab PCR and Genetics	X			X	X		X	X	X
Lab Antiseptics	X		X	X			X	X	X
Lab Disinfectants	X		X				X	X	X
Lab Antibiotics	X		X	X	X		X	X	X
Three D or Pamphlet project		X	X	X	X	X			X

Course and Program SLOs Alignment

Program SLOs are those student learning outcomes for a program that will be assessed to measure the effectiveness of that course of study.

After writing the Program SLOs, an analysis of where those SLOs are formatively (F) and summatively (S) addressed are plotted in a matrix.

	Program SLOs				
Course	SLO1	SLO2	SLO3	SLO4	SLO5
Math D					
Chem 11	F		F	F	F
Bio 14	F			F	S
Bio 15		S	F	S	
Bio 16	S		S		
Med Term	F				F

The matrix ensures that students have been introduced to the outcome, had formative feedback, and are finally assessed concerning successful student learning.

Potential Problems inherent in this matrix?