Student Learning Outcomes (SLOs): An Overview

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Introduction

On behalf of the SLO Committee I’m very happy to present the third installment of the WLAC SLO related handbooks for faculty. As I mention often at campus SLO workshops and the division meetings I attend to discuss SLOs and the SLO cycle, Student Learning Outcomes assessment is something you have been doing all along. The assessment process is simply our way of formalizing it.

Many of you have invested time to attend past workshops on SLO Development and or SLO Assessment and you may have hard copies of the handbooks developed for you to use while engaged in that work. This third handbook is meant to provide an overview of Student Learning Outcomes, help visualize the SLO process, aid with the forms that you may be asked to document SLO findings for current and future courses. I hope that you all keep it as a reference and please offer your input if an improvement can be made. This is a faculty-driven process and can only improve with your collective input. As always please let me know if you would like a one-on-one meeting to help in the process or invite me to a future division meetings to offer assistance.

-Todd Matosic, SLO Coordinator
Outcomes at West Los Angeles College

Student learning outcomes (SLOs) are the overarching, specific observable or measurable results students are expected to achieve as a result of an activity. These outcomes may involve knowledge (cognitive), skills (behavioral), or attitudes (affective) that provide evidence that learning has occurred as a result of a specified course, program activity, or process.

SLOs describe a student’s ability to synthesize many discrete skills using higher level thinking skills and to produce something that asks them to apply what they’ve learned. SLOs usually encompass a collective gathering of smaller discrete course objectives through analysis, evaluation and synthesis into more sophisticated skills and abilities.

At West, there are three levels of SLOs. They are Institutional SLOs, Program SLOs, and Course SLOs. In addition, Service Learning Outcomes have been established in Student Services, and Service Area Outcomes (SAOs) are defined in Administrative Services.

Course SLOs
Course Student Learning Outcomes describe knowledge, skills, abilities and attitudes that a student can demonstrate upon the completion of a particular course.

Program SLOs
Program Student Learning Outcomes describe knowledge, skills, abilities and attitudes that a student can demonstrate upon the completion of a particular degree or certificate.

Institutional SLOs
Institutional Student Learning Outcomes describe knowledge, skills, abilities and attitudes that a student can demonstrate upon the completion of the entire learning experience at West.

Student Services | Service Level Outcomes
Service Level Outcomes are means of evaluating the services provided by the college's student service programs. They are created and assessed by staff and managers of the units and areas. They inform planning and lead to goals of improved support services.

Administrative Services | Service Area Outcomes
Service Area Outcomes are means of evaluating the services provided by the college's administrative services departments. They are created and assessed by staff and managers of the units and areas. They inform planning and lead to goals of improved administrative services.
The SLO course assessment and revision process is an ongoing cycle that continuously improves course content and delivery methodologies and is a part of the larger accreditation cycle that the college is engaged in.

- **SEMESTER 1**: Courses are administered and assessed.
- **SEMESTER 2**: Courses are revised based on assessment needs.
- **SEMESTER 3**: Course changes are implemented as needed and new courses are assessed.

While a logical order of the assessment cycle would begin the process during the fall with implementation occurring the following fall, the three semester cycle has flexibility. For example, some courses are only offered in the spring, for those courses, the cycle would begin then with implementation occurring the following spring.

This sustained improvement process ensures that course content, delivery mechanisms and exams yield the most up-to-date information and achieve the greatest degree of student success.
At the heart of the SLO assessment process is the mechanism for course changes. These changes can ultimately impact student learning and success in the program/course. Such changes, which have been documented, include changes to the format of the course, the content and the pedagogical methods.

Ingrained in this process is the potential for amending, adding or deleting SLOS that are no longer congruent with the program or discipline, or have been proven to be less relevant or effective as it relates to course objectives or student outcomes.
SLO Information Flow Infrastructure

Key to Communications Symbols:

- Support/Training
- Information
- Approval
- Cooperative Planning
- Discussion of findings

Web-based Communications Channels:

west.edu/slo

Offering useful information to the campus community including history of SLOs, terminology, report, forms and other information.

west-slo.weebly.com

A step-by-step, online video tutorial site aimed atwards faculty and providing guidance and clarity in completing the SLO assessment.
Campus-wide Impact of SLO/SAO Assessment on Student Success

Institutional Level
- Instructional Programs
- Programs
- Courses
- Administrative Services
- Campus Services

Student Success
- Instructional Delivery
- Infrastructural Environment
- Quality Assurance & Process Efficiency
- Resource Navigation & Access
- Measurement

SLO Committee | Curriculum Committee | Academic Senate
SLOs: “Guiding Principles” Conceptualized

Student Learning

Actualized

Knowledge, Skills & Pedagogical Practices Operationalized

SLOs and Student Learning – a Critical Linkage
SLO Development Best Practices

1. Identify 3-5 course SLOs that align with course objectives.
2. Develop course SLOs that
   o Describe the broadest goals for the activity, ones that require higher-level thinking abilities.
   o Require students to synthesize many discreet skills or areas of content.
   o Ask students to then produce something – papers, projects, portfolios, demonstrations, performances, art works, exams, educational plan etc. – that applies what they have learned.
3. Include the specific assessment method(s) that will be used to evaluate or assess the product to measure a student’s achievement or mastery of the outcomes.
4. Specify a criterion level that reflects, in the faculty’s judgment, satisfactory performance on the SLO.
5. Ensure a broad range of faculty teaching the course participate in the development of course SLOs.

SLO Assessment Best Practices

1. Be sure to have the same course SLO for each section of the same course. This SLO should be documented on your syllabus.
2. If you are using a qualitative assessment method to assess your course SLO, use a rubric to score it. (See pages 7-9 of this handbook for more information about rubrics).
3. In assessing multiple sections of the same course, use a common rubric to score the same assessment method.
4. Faculty dialogue is a key part of the SLO cycle and a valuable opportunity for sharing best practices. Consult with each other regarding pedagogy, assessment methods, rubrics, assessment results, and changes based on assessment.
5. To obtain more comparative data, assess as many sections of the same course as is feasible. Consult your division chair for more information.
Faculty Dialogue

Ideally, to garner the most data for improvements, all sections of a course would assess when the course is ready (according to the SLO course calendar) to be assessed. As this is not always practical, and because some courses only have one instructor to assess them, we assess sections of courses as to what is practical and reasonable according to department chairpersons.

At your next division meeting, your division chair may inform you that the course you teach is indeed up for assessment. However, there may also be 5 other sections that are being offered and of these, only 3 faculty members may be asked to assess. Communication with your division chair regarding which sections need to be assessed will be important for you to know. You will most likely hear about the SLO calendar and these types of details in your division meetings when the SLO agenda item is being discussed.

Questions for Generating Faculty Discussion on SLOs

Semester start

• Which courses are ready to be assessed in my division?
• Which outcome(s) am I assessing?
• Where do I find the program SLOs that exist for my discipline?
• Where do I find the course specific SLOs that I need to place into my syllabus?

The Assessment Process

• What assessment instrument will I use to assess the SLO I am going to assess?
• How many sections of my course will be assessed?
• What kind of rubric can I use?
• Do I have to use a specific assessment instrument for assessing my outcome?

The Revision Process

• What assessment instrument did I use to assess the SLO?
• How can I improve the abilities of my students to learn this particular outcome?
• How can I improve this course for the next semester?
• Do I want to recommend any pre-requisites or advisories to my course?
• Is the SLO still effective?
• Is the SLO still measurable?
• Is the SLO in need of re-wording?

Implementation Process

• What changes have been made as a result of assessment?
• What was the impact of these changes?
• Are the proposed changes going to be temporary or made permanent?
• Are there resources required for implementing this change?
• Is this included in my division’s Program Review?
SLOs in the Classroom

In the classroom, the 2002 Accreditation Standards required that SLOs become an integral part of every syllabus. SLOs should also act as a guide for classroom activities and direct classroom assessments or evaluations. Remember that the course outline of record is the approved outline that faculty must adhere/teach to. So a course SLO that is listed in the outline is the SLO that will need to be listed in the syllabus for any and all sections of the same course.

Where can I find the SLOs for the course that I am teaching?
SLOs are located on the West Los Angeles College SLO website. Please visit http://www.wlac.edu/slo/course_slos.html and be sure to bookmark it for future reference.

Follow the link on the page to the course SLO listing. Locate your Division on the tabs at the bottom of the window. Click on the tab and locate your course. Click on the arrow buttons on the right to see additional divisions.

What should I include in my syllabus?

1. List course SLOs in your syllabus.

SLOs are located on the West Los Angeles College SLO website http://www.wlac.edu/slo/course_slos.html. Follow the link on the page to the course SLO listing. Locate your Division on the tabs at the bottom of the window. Click on the tab and locate your course. Click on the arrow buttons on the right to see additional divisions.

Listing the SLOs on your syllabus is now part of your evaluation. See appendix C of the AFT contract.

2. Include the assessment method.

In your syllabus, be sure to include the assessment method (for example exam, quiz, paper, project) for the course SLO(s) you will be assessing in your class.
Sample Course SLO Addendums & Course SLO Assessments

Please visit the SLO website at http://www.wlac.edu/slo/forms/index.html to view sample Course SLO Addendums and sample Course SLO Assessments from Fall 2012.

Closing the Loop

The final step in the assessment of student learning outcomes is often called “Closing the Loop.” The term refers to taking the time to look carefully at the data you have collected and analyzing what they suggest you can do to improve teaching and learning.

Writing SLOs and assessing them is no good if the final reflective step isn’t completed. The good news is that it can be both the most rewarding and most enjoyable part of the assessment process, especially if it results in dialogue with other colleagues about what is going on in your classrooms or department. Some community colleges, ones that have embarked on assessment processes that ask colleagues to share results, report that meetings have become more meaningful. They are actually talking about teaching instead of budget cuts, college business or even parking!

The chart below outlines the process. Note how circular it is. It keeps going, each step feeding into the next. Assessment never really does end, it simply continues in the same way that you informally evaluate what happens in your classes.

We evaluate assessment results and then plan how to improve teaching and learning based on those results. As a result of assessment, goals and action plans are identified and resource requests are made in the Program Review process.
Evaluation of the Process

The SLO Committee evaluates the process for assessment of instructional SLOs at the course, program, and institutional level. The SLO Committee reviews feedback gathered from the SLO Assessment Tool question, “What changes would you suggest (if any) to the outcomes process? Please share any general comments on the process and/or results of assessment that you would like the SLO committee to know.” Responses to this question are aggregated and reviewed at the SLO Committee. In addition, feedback from the process is requested from division chairs at Divisional Council.

Student Services deans and vice president participate in the evaluation of the process for Service Level Outcomes. Administrative Services unit and department managers, including the vice president, participate in the evaluation of the process for Service Area Outcomes.
The following glossary was developed from existing research and feedback from faculty and researchers from the California community colleges in response to Resolution S08 2.02 that asked the Academic Senate for California Community College to address the confusion in the field by researching and developing a glossary of common terms for student learning outcomes and assessment. The glossary does not dictate terminology nor does it seek to be comprehensive. Due to the increased collaboration between researchers and faculty, dialog about these terms increases our ability to serve our students and increase student success.
**Affective Outcomes.** Affective outcomes relate to the development of values, attitudes and behaviors.

**Alignment.** Alignment is the process of analyzing how explicit criteria line up or build upon one another within a particular learning pathway. When dealing with outcomes and assessment, it is important to determine that course outcomes align or match up with program outcomes; that institutional outcomes align with the college mission and vision. In student services, alignment of services includes things like aligning financial aid deadlines and instructional calendars.

**Artifact.** An assessment artifact is a student-produced product or performance used as evidence for assessment. An artifact in student services might be a realistic and achievable student educational plan (SEP).

**Assessment Cycle.** The assessment cycle refers to the process called closing the loop and is figuratively represented below.

**Closing the Assessment Loop**

1. **Develop or modify Student Learning Outcomes SLOs**
2. **Develop, modify, or review a curriculum, course, program, or service**
3. **Collect, discuss, and analyze data.**
4. **Determine refinements based on outcomes data**
5. **Design and Measure Student Learning as a result of the Curriculum, Course or Program**
**Assessment of Learning.** Learning assessment refers to a process where methods are used to generate and collect data for evaluation of courses and programs to improve educational quality and student learning. This term refers to any method used to gather evidence and evaluate quality and may include both quantitative and qualitative data in instruction or student services.

**Assessment for Accountability.** The primary drivers of assessment for accountability are external, such as legislators or the public, and usually entail indirect or secondary data. Application of accountability data for educational improvement requires careful analysis of the alignment of the data and the ramifications of the actions.

**Assessment for Placement.** Assessment for placement is the process of gathering information about individual students, such as a standardized test or process to determine a student’s skill level, in order to place the student in a course sequence, such as math, English, ESL, or reading to facilitate student success. This process involves the validation of the content of the standardized test by the appropriate faculty content experts and analysis of the cut scores to determine the effectiveness of the placement and the development of multiple measures. Title 5 §55502 defines assessment for placement and the requirements for this kind of assessment.1

**Authentic Assessment.** Traditional assessment sometimes relies on indirect or proxy items such as multiple choice questions focusing on content or facts. In contrast, authentic assessment simulates a real world experience
by evaluating the student’s ability to apply critical thinking and knowledge or to perform tasks that may approximate those found in the work place or other venues outside of the classroom setting.  

**Bloom’s Taxonomy.** Bloom’s Taxonomy is an example of one of several classification methodologies used to describe increasing complexity or intellectual sophistication:

1. **Knowledge:** Recalling or remembering information without necessarily understanding it. Includes behaviors such as describing, listing, identifying, and labeling.

2. **Comprehension:** Understanding learned material and includes behaviors such as explaining, discussing, and interpreting.

3. **Application:** The ability to put ideas and concepts to work in solving problems. It includes behaviors such as demonstrating, showing, and making use of information.

4. **Analysis:** Breaking down information into its component parts to see interrelationships and ideas. Related behaviors include differentiating, comparing, and categorizing.

5. **Synthesis:** The ability to put parts together to form something original. It involves using creativity to compose or design something new.
6. **Evaluation**: Judging the value of evidence based on definite criteria. Behaviors related to evaluation include: concluding, criticizing, prioritizing, and recommending.³ (Bloom, 1956)

**Classroom assessment techniques.** Classroom assessment techniques (CATs) are “simple tools for collecting data on student learning in order to improve it” (Angelo & Cross, 1993, p. 26).⁴ CATs are short, flexible, classroom techniques that provide rapid, informative feedback to improve classroom dynamics by monitoring learning, from the student’s perspective, throughout the semester. Data from CATs are evaluated and used to facilitate continuous modifications and improvement in the classroom.

**Classroom-based assessment.** Classroom-based assessment is the formative and summative evaluation of student learning within a classroom, in contrast to institutional assessment that looks across courses and classrooms at student populations.

**Closing the Loop.** Closing the loop refers to the use of assessment results to improve student learning through collegial dialog informed by the results of student service or instructional learning outcome assessment. It is part of the continuous cycle of collecting assessment results, evaluating them, using the evaluations to identify actions that will improve student learning, implementing those actions, and then cycling back to collecting assessment results, etc.

**Competencies.** See Student Learning Outcomes.
**Continuous Improvement.** Continuous improvement reflects an on-going, cyclical process to identify evidence and implement incremental changes to improve student learning.

**Core Competencies.** Core competencies are the integration of knowledge, skills, and attitudes in complex ways that require multiple elements of learning which are acquired during a student’s course of study at an institution. Statements regarding core competencies speak to the intended results of student learning experiences across courses, programs, and degrees. Core competencies describe critical, measurable life abilities and provide unifying, overarching purpose for a broad spectrum of individual learning experiences. Descriptions of core competencies should include dialog about instructional and student service competencies. See also **Institutional Learning Outcomes.**

**Course Assessment.** This assessment evaluates the curriculum as designed, taught, and learned. It involves the collection of data aimed at measuring successful learning in the individual course and improving instruction with the ultimate goal towards improving learning and pedagogical practice.

**Criterion-based assessments.** Criterion-based assessment evaluates or scores student learning or performance based on explicit criteria developed by student services or instruction which measures proficiency at a specific point in time.

**Culture of evidence.** The phrase “culture of evidence” refers to an institutional culture that supports and integrates research, data analysis,
evaluation, and planned change as a result of assessment to inform decision-making (Pacheco, 1999). A culture of evidence is characterized by the generation, analysis and valuing of quantitative and qualitative data in decision making.

**Direct data.** Direct data provide evidence of student knowledge, skills, or attitudes for the specific domain in question and actually measuring student learning, not perceptions of learning or secondary evidence of learning, such as a degree or certificate. For instance, a math test directly measures a student’s proficiency in math. In contrast, an employer’s report about student abilities in math or a report on the number of math degrees awarded would be indirect data.

**Embedded assessment.** Embedded assessment occurs within the regular class or curricular activity. Class assignments linked to student learning outcomes through primary trait analysis serve as grading and assessment instruments (i.e., common test questions, CATs, projects or writing assignments). Specific questions can be embedded on exams in classes across courses, departments, programs, or the institution. Embedded assessment can provide formative information for pedagogical improvement and student learning needs.

**Evidence.** Evidence is artifacts or objects produced that demonstrate and support conclusions, including data, portfolios showing growth, as opposed to intuition, belief, or anecdotes. “Good evidence, then, is obviously related to the questions the college has investigated and it can be replicated, making
it reliable. Good evidence is representative of what is, not just an isolated case, and it is information upon which an institution can take action to improve. It is, in short, relevant, verifiable, representative, and actionable.\(^6\)

**Evidence of program and institutional performance.** Program or institutional evidence includes quantitative or qualitative, direct or indirect data that provide information concerning the extent to which an institution meets the goals it has established and publicized to its stakeholders.

**Formative assessment.** Formative assessment is a diagnostic tool implemented during the instructional process that generates useful feedback for student development and improvement. The purpose is to provide an opportunity to perform and receive guidance (such as in class assignments, quizzes, discussion, lab activities, etc.) that will improve or shape a final performance. This stands in contrast to summative assessment where the final result is a verdict and the participant may never receive feedback for improvement such as on a standardized test or licensing exam or a final exam.

**General Education Student Learning Outcomes.** GE SLOs are the knowledge, skills, and abilities a student is expected to be able to demonstrate following a program of courses designed to provide the student with a common core of knowledge consistent with a liberally educated or literate citizen. Some colleges refer to these as core competencies, while others consider general education a program.
**Grades.** Grades are the faculty evaluation of a student’s performance in a class as a whole. Grades represent an overall assessment of student class work, which sometimes involves factors unrelated to specific outcomes or student knowledge, values or abilities. For this reason equating grades to SLO assessment must be done carefully. Successful course completion is indicated by a C or better in California Community College data, such as that reported in the Accountability Report for Community Colleges (ARCC).

**Homegrown or Local assessment.** This type of assessment is developed and validated by a local college for a specific purpose, course, or function and is usually criterion-referenced to promote validity. This is in contrast to standardized state or nationally developed assessment. In student services homegrown student satisfaction surveys can be used to gain local evidence, in contrast to commercially developed surveys which provide national comparability.

**Indirect data.** Indirect data are sometimes called secondary data because they indirectly measure student performance. For instance, certificate or degree completion data provide indirect evidence of student learning but do not directly indicate what a student actually learned.

**Information competency.** Information competency reflects the ability to access, analyze, and determine the validity of information on a given topic, including the use of information technologies to access information.
**Institutional Learning Outcomes (ILO).** Institutional Learning Outcomes are the knowledge, skills, and abilities a student is expected to leave an institution with as a result of a student’s total experience. Because GE Outcomes represent a common core of outcomes for the majority of students transferring or receiving degrees, some but not all, institutions equate these with ILO’s. ILOs may differ from GE SLOs in that institutional outcomes may include outcomes relating to institutional effectiveness (degrees, transfers, productivity) in addition to learning outcomes. Descriptions of ILOs should include dialog about instructional and student service outcomes.

**Likert scale.** The Likert scale assigns a numerical value to responses in order to quantify subjective data. The responses are usually along a continuum such as responses of strongly disagree, disagree, agree, or strongly agree and are assigned values such as 1 to 4.

**Metacognition.** Metacognition is the act of thinking about one’s own thinking and regulating one’s own learning. It involves critical analysis of how decisions are made and vital material is consciously learned and acted upon.

**Norm-referenced assessment.** In norm-referenced assessment, an individual’s performance is compared to another individual. Individuals are commonly ranked to determine a median or average. This technique addresses overall mastery to an expected level of competency, but provides little detail about specific skills.
**Objectives.** Objectives are small steps that lead toward a goal, for instance the discrete course content that faculty cover within a discipline. Objectives are usually more numerous and create a framework for the overarching student learning outcomes which address synthesizing, evaluating and analyzing many of the objectives.

**Pedagogy.** Pedagogy is the art and science of how something is taught and how students learn it. Pedagogy includes how the teaching occurs, the approach to teaching and learning, how content is delivered, and what the students learn as a result of the process. In some cases pedagogy is applied to children and andragogy to adults; but pedagogy is commonly used in reference to any aspect of teaching and learning in any classroom.

**Primary Trait Analysis (PTA).** Primary trait analysis is the process of identifying major characteristics that are expected in student work. After the primary traits are identified, specific criteria with performance standards are defined for each trait. This process is often used in the development of rubrics. PTA is a way to evaluate and provide reliable feedback on important components of student work thereby providing more information than a single, holistic grade.

**Program.** In Title 5 §55000(g), a “Program” is defined as a cohesive set of courses that result in a certificate or degree. However, in Program Review, colleges often define programs to include specific disciplines. A program may refer to student service programs and administrative units, as well.
**Qualitative data.** Qualitative data are descriptive information, such as narratives or portfolios. These data are often collected using open-ended questions, feedback surveys, or summary reports, and may be difficult to compare, reproduce, and generalize. Qualitative data provide depth and can be time and labor intensive. Nonetheless, qualitative data often pinpoint areas for interventions and potential solutions which are not evident in quantitative data.

**Quantitative data.** Quantitative data are numerical or statistical values. These data use actual numbers (scores, rates, etc) to express quantities of a variable. Qualitative data, such as opinions, can be displayed as numerical data by using Likert scaled responses which assign a numerical value to each response (e.g., 4 = strongly agree to 1 = strongly disagree). These data are easy to store and manage providing a breadth of information. Quantitative data can be generalized and reproduced, but must be carefully constructed to be valid.

**Reliability.** Reliability refers to the reproducibility of results over time or a measure of the consistency when an assessment tool is used multiple times. In other words, if the same person took the test five times, the scores should be similar. This refers not only to reproducible results from the same participant, but also to repeated scoring by the same or multiple evaluators. While the student learning outcomes process should be reliable, it does not suggest statistical reliability analysis for every item and aspect of classroom and program assessment, but rather indicates that assessments should be a consistent tool for testing the student’s knowledge, skills or ability.
Rigor. California community college faculty use the term rigor relating to courses in the context of Title 5 §55002, such as referring to course standards of grading policies, units, intensity, prerequisites level, etc. Researchers often refer to rigor as statistical rigor or compliance with good statistical practices.

Rubric. A rubric is a set of criteria used to determine scoring for an assignment, performance, or product. Rubrics may be holistic, not based upon strict numerical values which provide general guidance. Other rubrics are analytical, assigning specific scoring point values for each criterion often as a matrix of primary traits on one axis and rating scales of performance on the other axis. A rubric can improve the consistency and accuracy of assessments conducted across multiple settings.

Sampling. Sampling is a research method that selects representative units such as groups of students from a specific population of students being studied, so that by examining the sample, the results can be generalized to the population from which they were selected when everyone in the population has an equal chance of being selected (i.e. random). Sampling is especially important when dealing with student service data.

Standardized assessment. Standardized assessments are those created, tested, validated, and usually sold by an educational testing company (e.g., GRE’s, SAT, ACT, ACCUPLACER) for broad public usage and data comparison, usually scored normatively. There are numerous standardized
assessments instruments available for student service programs which provide national comparisons.

**Student Learning Outcomes (SLO).** Student learning outcomes (SLOs) are the specific observable or measurable results that are expected subsequent to a learning experience. These outcomes may involve knowledge (cognitive), skills (behavioral), or attitudes (affective) that provide evidence that learning has occurred as a result of a specified course, program activity, or process. An SLO refers to an overarching outcome for a course, program, degree or certificate, or student services area (such as the library). SLOs describe a student’s ability to synthesize many discreet skills using higher level thinking skills and to produce something that asks them to apply what they’ve learned. SLOs usually encompass a gathering together of smaller discrete objectives (see definition on previous page) through analysis, evaluation and synthesis into more sophisticated skills and abilities.

**Summative assessment.** A summative assessment is a final determination of knowledge, skills, and abilities. This could be exemplified by exit or licensing exams, senior recitals, capstone projects or any final evaluation which is not created to provide feedback for improvement, but is used for final judgments.

**Validity.** An indication that an assessment method accurately measures what it is designed to measure with limited effect from extraneous data or variables. To some extent this must also relate to the integrity of inferences made from the data.
**Content Validity.** Validity indicates that the assessment is consistent with the outcome and measures the content we have set out to measure. For instance, you go to take your driver’s license exam, the test does not have questions about how to make sushi.

**Variable.** A variable is a discrete factor that affects an outcome.
Section 55502 of Title 5 contains the following definitions related to assessment:

(b) “assessment” means the process of gathering information about individual students to facilitate student success. Assessment may include, but is not limited to, information regarding the student’s study skills, English language proficiency, computational skills, aptitudes, goals, learning skills, career aspirations, academic performance, and need for special services. Assessment involves the collection of such information at any time, before or after enrollment, except that the process of assigning a grade by an instructor shall not be considered part of the assessment process. Once a grade has been assigned and recorded in a student’s transcript it can be used in the assessment process.

(c) “assessment instruments, methods or procedures” means one or more assessment instruments, assessment methods, or assessment procedures, or any combination thereof. These include, but are not limited to, interviews, standardized tests, holistic scoring processes, attitude surveys, vocational or career aptitude and interest inventories, high school or college transcripts, specialized certificates or licenses, educational histories and other measures of performance. The term “assessment instruments, methods or procedures” also includes assessment procedures such as the identification of test scores which measure particular skill levels, the administrative process by which students are referred for assessment, the manner in which assessment sessions are conducted, the manner in which assessment results are made available, and the length of time required before such results are available.

Furthermore, Section 55202 states that the use of assessment as a prerequisite for placement into a course requires the use of multiple measures:
(c) The determination of whether a student meets a prerequisite shall be based on successful completion of an appropriate course or on an assessment using multiple measures. Any assessment instrument used shall be selected and used in accordance with the provisions of Subchapter 6 (commending with §55500) of Chapter 6 of this Division.


7 Title 5 §55000(g) defines an educational program as “an organized sequence of courses leading to a defined objective, a degree, a certificate, a diploma, a license, or transfer to another institution of higher education”

8 As one example of the use of the term rigor Title 5 §55002 (b) (2) (C) says “In particular, the assignments will be sufficiently rigorous that students successfully completing each such course, or sequence of required courses, will have acquired the skills necessary to successfully complete degree-applicable work.”
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