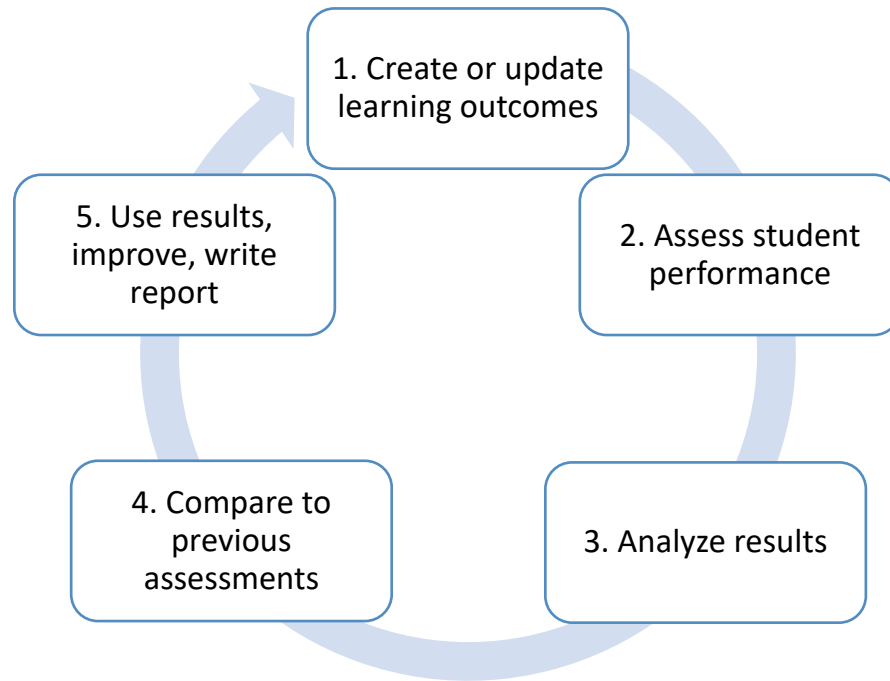


Washtenaw Community College



The Assessment Workbook

Step-by-Step Guidance for the Assessment Process

The Office of Curriculum & Assessment

The Assessment Committee

Contents

Definitions of Assessment	3
Assessment and its Importance.....	3
The Course Assessment Cycle	5
Meaningful Assessment	6
Planning the Assessment.....	7
Implementing the Assessment Plan	11
Preparing to Writing the Assessment Report	12
Write the Assessment Report.....	13
Glossary of Assessment Terms	14

Definitions of Assessment

The **Higher Learning Commission** (HLC) has included student assessment as an integral part of the criteria for accreditation by establishing criterion 4 and subset 4.B.

Criterion 4. Teaching and Learning: Evaluation and Improvement

The institution demonstrates responsibility for the quality of its educational programs, learning environments, and support services, and it evaluates their effectiveness for student learning through processes designed to promote continuous improvement.

4.B. The institution demonstrates a commitment to educational achievement and improvement through ongoing assessment of student learning.

1. The institution has clearly stated goals for student learning and effective processes for assessment of student learning and achievement of learning goals.
2. The institution assesses achievement of the learning outcomes that it claims for its curricular and co-curricular programs.
3. The institution uses the information gained from assessment to improve student learning.
4. The institution's processes and methodologies to assess student learning reflect good practice, including the substantial participation of faculty and other instructional staff members.

Assessment and its Importance

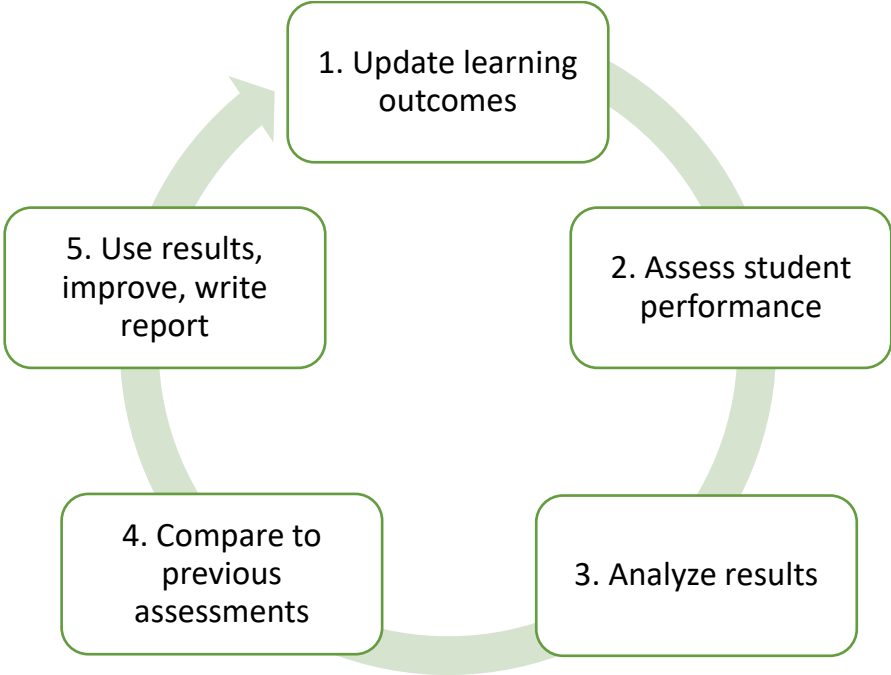
Assessment of student academic achievement is the process of evaluating whether students are learning what we say they are learning. More specifically, assessment is the systematic collection, review, and use of information to increase students' learning and development. Through a variety of measures, students are assessed to determine whether they are achieving the learning outcomes that faculty have determined for their courses and programs.

Assessment is important for several reasons:

- Assessment results provide qualitative information that helps faculty determine how they might improve courses and/or programs through changes in curriculum, teaching methodologies, course materials, or other areas. When integrated into the planning cycle for curriculum development and review, assessment results can provide a powerful rationale for securing support for curricular and other changes.
- Assessment may provide comparative data that can give you valuable information on how well your students are meeting the learning outcomes for your course or program, or may show how WCC students perform compared to those at similar institutions.

- The Higher Learning Commission requires an effective assessment program for continuing accreditation. Assessment reports must show evidence of the College's efforts toward continuous improvement of effective teaching and learning.

The Course Assessment Cycle



Meaningful Assessment

What are the most important things you want students to know, do, or achieve?

If you do not care about the outcomes you write, you will not care about the data or the results.

Meaningful Assessment is a Move from Compliance to Commitment

Compliance answers external questions

- What does HLC need us to do?
- What data do we need to have?
- How often do we need to collect data?
- Are you going to grade us on this?
- How many questions, students or projects do we need to have?

Commitment answers internal questions

- Do our students have the skills and knowledge we told them they would have after completing this course?
- Is the curriculum designed to facilitate student learning of our outcomes?
- How can I measure whether or not it is working?

Planning the Assessment

1. Locate the master syllabus. It can be found on CurricUNET or on the Curriculum and Assessment web page at:
<http://www.wccnet.edu/curriculum/progdata/levelone/syllabi/>.
2. Read the master syllabus – The master syllabus should provide all the necessary information to begin the assessment planning process. If not, discuss with the Director of Curriculum and Assessment or an Assessment Committee member on the best way to proceed.

Content on the master syllabus is not optional. Every section of every course should be completing and meeting the student learning outcomes.

3. Review the Student Learning Outcomes.
 - a. Do they start with a verb?
 - b. Are they measurable?
 - c. Do they identify the most important things that students should be able to do after completing this class?
4. If you answered “yes” to these questions, then proceed to the next step.

Otherwise, discuss the situation with an Assessment Committee member or the Director of Curriculum and Assessment to determine best next steps. You will either proceed with assessment by making minor adjustments to the information or update the master syllabus to allow for meaningful results.

5. Review the Assessment Plan – Do the outcomes and plans align?
 - a. Outcomes must measure what you want the student to do. Are you assessing the outcomes using an appropriate tool?
 - b. WCC’s reformatted Bloom’s Taxonomy is included in the appendix of this document and will guide you in aligning verbs and assessment tools.
 - i. If you ask them to “describe”, they need to write or speak words.
 - ii. If you want them to “identify” or “recognize”, you can use multiple-choice or matching questions or tasks.
 - iii. If you want them to “create”, there has to be a product of some kind.

6. Identify the artifact(s) that you will use to assess students. They might include test questions, papers, projects, computer program, or check lists. Are you able to determine each individual student's skill level? This can be challenging for group projects so consider that carefully.
7. Review the Standard of Success
This will determine how you view the data.
 - a. If you determine that 70% of the students will need to score 75% or higher on each outcome-related question, you will score the questions. Once scored, you will sort the scores on each question from highest to lowest and determine if 70% of the students (e.g. 21 of 30) scored 75% or higher.
 - b. If 70% of the students will score 75% or higher on all outcome-related questions, you need to score the questions and determine the average score for each student. Sort the average scores from highest to lowest and determine if 70% of the students (e.g. 21 of 30) scored 75% or higher.
 - c. If 75% of the students will score a minimum of 85% on the essay, you will score the essay and determine how many students scored 85% or higher. Then divide the number of students who scored 85% or higher by the total number of students who took the essay test to determine if the number of students who scored 85% or higher is greater than or equal to 75%.
 - d. If the standard is that 70% of students will score at least 6 out of 8 on a rubric, then you need to sort the rubric scores from highest to lowest and determine if 70% of the students (e.g. 21 of 30) scored 6 or more.
8. Develop your plan for course assessment. Based on the information in the master syllabus, you now have the opportunity to consider how you are going to put that plan into action.
9. Are there multiple sections of the course? If so, they all need to be included in the assessment. Consistency across sections is essential to demonstrate universal participation in the assessment process, adherence to the master syllabus, successful progress in sequenced classes, as well as to transfer credit to another school. By including all sections, this also assures that: (i) all modes of instruction (e.g., face-to-face, online and blended) are represented; (ii) full-time and part-time instructors participate; and (iii) on-campus and off-campus instruction is included.
 - a. If there are only one or two sections taught in a semester, assessment data should be collected over multiple semesters.
 - b. For most courses with a few sections, all sections and all students should be assessed.

- c. Exceptions are made for
 - i. High enrollment courses. In this case, sampling is used to manage the number of students assessed. Please include the equivalent of several full sections.
 - ii. Complex or time-consuming assessment tools. In this case, sampling is used to identify the students to assess. We recommend that you include the equivalent of at least one full section.
10. Sampling is used when it is not viable to assess all students. Random sampling can be used at the student level. WCC recommends that it is always preferable to assess all students from all sections. If you can't reasonably assess all students from all sections, select a sample size that is as large as possible that includes students from all sections. Ideally, this includes at least 50% of all students, but no less than the capacity of one section. For example, randomly sample 50% of the students in each section.

Consider the following types of samples.

- a. Random samples are used to collect data from all sections. You could use a random number generator to pick your sample.
 - b. Systematic samples are done according to a rule. For example, you could shuffle assessment artifacts and then select every other student.
11. Coordinate with other instructors (both full-time and part-time) to agree on a plan of action.

Coordination between all instructors of all sections is important. This is most effective when done prior to or at the beginning of the semester.

- a. Talk to your department chair or dean for guidance on how to include all instructors in the assessment project.
- b. Share the expectation that participation is required. Participation in assessment is not optional.
- c. Share the plan with all instructors. Identify what information they will need to collect in order to be included in the assessment.
- d. Make sure your assessment instrument(s) are ones that will be completed by all students. Optional assessments will not do. Neither are ones which students might choose to skip because they have earned a satisfactory course grade without it.

12. Will everyone collect data in the same/similar format? Determine how the data will be collected prior to the exam, such as:

- a. Blackboard test questions (Are you using the goals tool?)
- b. Excel spreadsheet
- c. Scanned copies of essays
- d. Electronic versions of skills checklists

13. Instruct the students.

This is the fun part....

Now you do your magic and teach students the knowledge and skills identified in the student learning outcomes and course objectives.

Implementing the Assessment Plan

14. Have all instructors administer the test, task or other assessment activity.
15. Score the assessment tool/artifact. When WCC started the practice of assessment, best practices suggested that all data should be blind-scored. That is no longer considered a best practice. Now it is acceptable to have each instructor score the data based on the answer key or rubric.

Sometimes, it is better to have one or more individuals score the artifact when using a rubric. For example, photography has a capstone course in which industry professionals review the students work. Three or four professionals complete a scoring rubric for each student's work. They then share this information with the students as a means of providing professional review. The scoring rubric is also used to assess the course and program. A similar process is used in video production and graphic design.

Using Blackboard to score, record and generate test scores allows a central location to compile and analyze student data. Using Blackboard's Goals Tool can simplify this process.

16. Coordinate the collection of data from all course instructors. If you did a good job with the plan, this should be fairly easy. Be sure to collect data in a format that can be combined to create summary data to attach to the assessment report. Organize your assessment data based on the format of the standard of success for each outcome.
17. Record summary data to include in and attach to the assessment report. Do not include student-specific information (name, student number).

Summary Data includes all of the following:

- i. The number of students enrolled in the course(s),
- ii. The number of students assessed,
- iii. The percentage of students assessed,
- iv. The number of students who met the standard of success and
- v. The percentage of students who met the standard of success

Detailed Data may include one or more of

- i. Scores on tests (by student and by individual questions)
- ii. Rubric scores (both total and/or individual criterion scores)
- iii. Scores on skills checklists (both total and/or individual skill scores)

18. Making Assessment Easier:

- a. Can common assessment questions be embedded in every instructor's final exam? Note, assessment questions should all be required questions and not included in a question pool.
- b. Can you collect an essay from all students who take the class (does the topic matter)?
- c. Can all students create a product (drawing, animation, portfolio, etc.) that can be collected and scored against a rubric?
- d. Can all sections use a common skills checklist?
- e. Are you looking at each individual's work?
- f. Try to embed the assessment test, task or project in the course.

19. Collect the data in a common, meaningful format.

Preparing to Writing the Assessment Report

20. Review the data

- a. What does the data tell you about student performance on each outcome?
- b. Did students meet the standard of success on each outcome?
- c. Even if students met the standard of success, review the details of the data to identify areas where students did well and where they did not perform as well.

21. Prepare to write the Assessment Report

- a. Previous Assessment Reports – if the course was assessed in the past, you will need to review the last assessment report, paying particular attention to the Intended Changes section. You will be asked to evaluate how effectively the intended changes improved student performance.
- b. The system will provide you with the number of students who were enrolled in the course. If the number of students assessed is different, please explain the differences. Unless sampling is used, reasons for the differences will probably be drops, withdrawals, or absences when

assessment tool collected. If sampling is used, please describe the method used to sample students.

- c. There is a question about the population of students (on-campus, MM, DL, evening, etc.) assessed. Explain how students from all populations were included. If they weren't included, please explain.
- d. You will be asked to explain the process used to assess this outcome. If it was a test, describe the type of test (multiple-choice, TF, short answer, essay, common problems, etc.) and how it was administered. Discuss how the test was scored or the product evaluated.
- e. Attach a sample of any rubric or skills checklist used for assessment.
- f. Describe the assessment results and state how well students achieved the learning outcomes.
- g. Identify the strengths and weaknesses identified through your assessment process. Consider how you plan to address weaknesses in the Intended Changes section of the report. Consider if the course is meeting the needs of the students.
- h. Prepare summary data to attach to the report. All reports must include summary data. This information should be sufficiently detailed to allow the committee to see how you reached your conclusions. Do not include any student identifiable information. The Assessment Committee will review the summary data.
- i. Keep detailed data available. The Committee may ask for detailed data to help them understand your report.

Write the Assessment Report

Please see the CurricUNET Assessment Report procedures for step-by-step instructions at <http://www.wccnet.edu/curriculum/curricunet/>

Glossary of Assessment Terms

Academic Achievement	Student performance on course, program or general education outcomes. Measured by various assessment methods pertaining to the stated outcomes.
Accreditation	The designation that an institution earns indicating that it functions appropriately with respect to its resources, programs and services. The accrediting association, often comprised of peers, is recognized as the external monitor. Maintaining fully accredited status ensures that the university remains in compliance with federal expectations and continues to receive federal funding.
Alignment	Usually refers to the relationship of scope, sequence, continuity and balance in curriculum. Also refers to the relationship between the course description, student learning outcomes and course objectives. Curriculum mapping is an example of the alignment process because it shows the specific course activities tied to the expected program results for the students.
Assessment:	It is an ongoing process aligned with the mission of the college, aimed at understanding and improving student learning. The purpose of assessment is to gather data on student achievement, analyze the data, and use the data to report and improve student learning.
Assessment for Accountability	Assessment of some unit (such as a course, program or entire institution) to satisfy stakeholders external to the unit itself. Results are often compared across units. Always summative. Example: to retain state approval, the achievement of a certain percent pass rate or better on the NCLEX exam for nursing students.
Assessment for Improvement	Assessment that feeds directly, and often immediately, back into revising the course, program or institution to improve student-learning results. Can be formative or summative.
Assessment Method	Refers to the opportunities instructors provide for students to learn and then demonstrate the knowledge and skills specified in the outcomes. Evidence may be provided by exams, student presentations, individual or group projects, portfolio development, juried evaluation, writing samples, pre-post-testing, laboratory practical, journals, outcomes on standardized tests (i.e. national or state licensure, certifications, and/or professional exams), or panel evaluation of capstone projects.
Assessment Plan	A document that outlines and describes student assessment activities that includes identifying learning outcome(s), assessment tool(s), next assessment term and year, assessment cycle, population(s) to be assessed, "number" of students to be assessed, scoring method(s) and identifying who will score and analyze the data.
Assessment of Programs	Uses the program as the level of analysis. Can be quantitative or qualitative, formative or summative, standards-based or value added and used for improvement or for accountability. Ideally, program outcomes would serve as a basis for the assessment. Example: One of the learning outcomes for the CTPA Police Academy is the success rate for graduates passing the Michigan Commission on Law Enforcement Standards (MCOLES) exam.

Attendance	Attendance is not an appropriate assessment tool. Student participation might be used but is often difficult to quantify.
Authentic Assessment	Measures students' performance and/or learning in a real-life context rather than a testing situation. Authentic assessment tools allow students to demonstrate or share their learning with others, e.g., multi-media presentation that is evaluated to determine if the desired learning has been achieved.
Backward Design	A series of steps defining a process for thinking through what the curriculum should be and then creating and implementing it with a mechanism for continuous refinement and revision.
Benchmark	A description of the expected level of student performance on a specific learning outcome. Also referred to as "standard of success" or "performance indicator".
Best Practices	A procedure that has been shown by research and/or experience to produce optimal results and that is established or proposed as a standard suitable for widespread adoption.
Bloom's Taxonomy	<p>A classification of levels of thinking or learning that range from a basic level of thinking to a more sophisticated level of thinking (remembering, understanding, applying, analyzing, evaluating and creating). Bloom identified three domains of learning: cognitive, or knowledge; affective, or attitude; and psychomotor, or skills. The cognitive domain involves levels of learning and intellectual outcomes. Within this domain are categories that are arranged in order of increasing complexity from the foundational level of thinking to the highest level of creating new ideas. These include:</p> <ul style="list-style-type: none"> • Remembering: Retrieve relevant knowledge from long-term memory. • Understanding: Construct meaning from instructional messages, including oral, written and graphic communication. • Applying: Carry out or use a procedure in a given situation. • Analyzing: Break material into constituent parts and determine how parts relate to one another and to an overall structure or purpose. • Evaluating: Make judgments based on criteria and standards. • Creating: Put elements together to form a coherent whole; reorganize into a new pattern or structure. <p>http://www.celt.iastate.edu/teaching/effective-teaching-practices/revised-blooms-taxonomy</p>
Capstone Courses/Projects	Students' mastery of the entire body of knowledge required for graduation in a program is assessed in a final required course. Possible methods of assessment are virtually unlimited (tests of achievement, papers, demonstrations, focus groups, etc.) Assessment is comparable between sections and from year to year.
Checklist	A list of traits or skills that should be presented in student work. Checklists may include just the task or include a rating scale. Items that are either right or wrong can be checked. Items that require an evaluation of frequency or quality may use a rating scale.

Class-Level Assessment:	Class-level assessment is intended for individual faculty who wish to improve his or her teaching and student learning of a specific section. Individual faculty gather data on student achievement of course learning outcomes within their class, analyze the data, and make appropriate changes.
Closing the Loop	The last step of the assessment cycle. Information learned as a result of the assessment process is incorporated into the course or program as a means of improving student performance.
Cohort	A group of students that begin a program together.
Common Exam or Final	Common final exams, or question subsets, test the level of student achievement of agreed upon course objectives and provide consistency across course sections.
Competency	The knowledge, skills, abilities, and behaviors critical to student achievement. Identifies what we want the students to learn.
Course-embedded Assessment	Questions intended to assess student outcomes are incorporated into final exams, research papers, or other course assignments.
Course-Level Assessment:	This level of assessment refers to the systematic evaluation of the achievement of course learning outcomes as specified in each course's master syllabus. Faculty teaching the course will gather and aggregate data on student achievement across all or a random sample of sections of a course, analyze the data, and make appropriate changes to improve student learning.
Culture of Assessment	An institutional characteristic that shows evidence for valuing and engaging in student assessment for ongoing improvement.
Curriculum	What is taught to students; both intended and unintended information, skills and attitudes.
Direct Assessment of Learning:	Gathers evidence, based on student performance, which demonstrates the learning itself. Examples: most classroom testing for grades is direct assessment (in this instance within the confines of a course), as is the evaluation of a research paper in terms of the discriminating use of sources. The latter example could assess learning accomplished within a single course or, if part of a senior requirement, could also assess cumulative learning.
Embedded Assessment:	A means of gathering information about student learning that is built into and a natural part of the teaching-learning process. Often uses for assessment purposes classroom assignments that are evaluated to assign students a grade. Can assess individual student performance or aggregate the information to provide information about the course or program; can be formative or summative, quantitative or qualitative.
End of Course Assessment	Common final exams, or question subsets, that test the level of student achievement of agreed upon course outcomes and provide consistency across course sections.
External Graders	Experts in the discipline are brought in to do assessments of programs, courses, student work, etc. as a check on validity and reliability of internal assessment practices.
External Surveys	Surveys of external groups providing feedback for assessing institutional effectiveness. Employers, departmental advisory committees, and possibly the community in general are examples.

Formal Assessment	Structured assessment procedures with specific guidelines for administration, scoring, and interpretation of results.
Formative assessment:	The gathering of information about student learning-during the progression of a course or program and providing ongoing feedback to students. Example: reading the first lab reports of a class to assess whether some or all students in the group need a lesson on how to make them succinct and informative.
Grades	While assessment tools may be used in the grading process, assigning grades is not synonymous with assessment. Grading practices and criteria, such as including attendance or class participation, reducing grades for late assignments and variations from teacher to teacher, all make grades (particularly final grades) inappropriate for assessment.
General Education Assessment	The process by which the college assesses whether all students (sometimes graduates) have achieved the students learning outcomes associated with each general education strand.
Graduate Exit Interviews	Interviews conducted with each graduate in a specific academic department aimed at determining if the program objectives and student expectations were fulfilled.
Group Projects	While group projects are a common teaching, learning and grading strategy, they are sometimes difficult to use for assessment. Generally, assessment seeks to confirm that some percent of “all students” have achieved student learning. Unless specifically and carefully designed, group projects do not lend themselves to assuring that “all students” are assessed.
HLC Assessment Academy	The Academy for Assessment of Student Learning offers HLC member institutions a four-year sequence of events and interactions that are focused on student learning, targeted at accelerating and advancing efforts to assess and improve student learning, and designed to build institution-wide commitment to assessment of student learning. WCC joined the Assessment Academy in June 2016 and will complete our membership in June 2020. https://www.hlcommission.org/Programs-Events/academies.html
Indirect Assessment of Learning:	These reveal characteristics associated with student learning, but only imply that learning occurred. Evidence may be provided by student perceptions of learning, completion rates, graduation rates, satisfaction surveys, essays, interviews, and/or focus groups.
Internships/Field work/Clinical Experiences	Internships, fieldwork or clinical experiences should only be used for assessment when they are required of all students. Voluntary activities result in inappropriate sampling.
Item Analysis	An analysis of student responses to exam questions used to identify questions that may need review or areas requiring improvement in order to achieve course outcomes.
Learning Outcome	Competencies stated in an observable or measurable way; identifies what the students actually learned in a measurable way. Statements representative of what learners are expected to be able to do with curriculum content following their interaction with teaching agents.
Likert Scale	A method used in questionnaires and surveys to prompt a respondent to express a view on a statement being presented, thereby signaling his or her level of agreement or disagreement with the statement presented.

LMS – Learning Management System	The online web-based interface that facilitates online classes and the web-enhanced components of hybrid (mixed mode) classes. Content is presented, forms are used for asynchronous communication and assignments and quizzes or tests are collected and completed. WCC uses Blackboard as our LMS.
Mapping (of Curriculum)	Refers to the process of equating course level outcomes to program level outcomes to ensure that course student learning outcomes are aligned with and support program level student learning outcomes.
Meaningful Assessment	Assess what you value and value what you assess. Meaningful assessment provides evidence that allows the instructor to make data-informed decisions about ways to improve teaching, learning and student success.
Mission Statement	A statement that defines the purpose of an institution.
Objectives	Objectives are the specific skills, values, and attitudes students should exhibit that reflect the broader student learning outcomes. Objectives are generally viewed as a piece of the student-learning outcome that leads to the larger goal of student learning. All outcomes must have objectives (usually 3 – 5). However, not all objectives have to relate to an outcome.
Objective Measure	Data that avoid bias from observers' feelings, interpretations or other extraneous factors. Examples include using stopwatches or electronic timers, measuring tape for distance, etc.
Pedagogy	The art and science of how something is taught and how students learn it. Pedagogy refers to the approach to teaching and learning, the way the content is delivered and what the students learn as a result of the process.
Performance Indicators	Marker or a piece of evidence that means something has been attained. See also "standard of success" or "benchmark"
Performance-based Assessment	Actual demonstration of tasks, skills, or procedures are observed and evaluated according to pre-specified criteria.
Portfolio Assessment	A portfolio is a representative collection of a student's work. The work is produced under conditions other than a classroom test and does not rely on a one-time observation.
Pre-test vs. Post-test/Value Added	Progress or value added can be measured through change from pre-test to post-test. Depending on the range of test scores, pre-test and post-test standards of success should also include a benchmark or minimum score.
Program-Level Assessment	Program-level assessment is a systematic way of monitoring whether students have actually acquired the skills, knowledge, and competencies intended by their program of study. The main purpose of the program assessment process is to evaluate how well intended program-level student-learning outcomes were achieved and develop strategies for improvement
Qualitative Assessment:	Collects data that does not lend itself to quantitative methods but rather to interpretive criteria (see the first example under "standards"). Qualitative data is non-numeric information.
Quantitative Assessment:	Collects data that can be analyzed using quantitative methods (see "assessment for accountability" for an example).

Rubrics	A scoring guide describing the criteria used to score or grade a learning outcome. It is one way to provide measurable data. A set of guidelines that from how something is to be done. Rubrics are used to make qualitative judgments about performance. Used in areas which are complex, subjective and vague. The components of a rubric are: a) measurement of stated object; b) a range to rate performance; and c) performance characteristics arranged in levels indicating the degree to which a standard has been met. The rubric typically resembles a matrix or grid with specific objectives or criteria to be assessed falling on the left-hand margin and levels of achievement or performance and performance characteristics running across the top margin.
Sample	Selecting a subset of the population based on defined criteria. Samples must be representative of the student population. Different types of samples are: <ul style="list-style-type: none"> • All students are assessed. Selecting the entire population is best if it is feasible. • Random Sample – uses a “tool” to identify random numbers that are used to select student assessment data. • Systematic Sample – a sample done according to a rule (for example, every 4th test). • Stratified Sample – sorts students into groups and selects a random sample from those groups (for example, one section taught DL, one section taught MM and one section taught face-to-face). Helps assure that the variable does not interfere with assessment.
Skills	Refers to procedural and psychomotor learning.
Standard of Success	A description of the expected level of student performance on a specific learning outcome. Also referred to as “benchmark”.
Standardized Testing	Off-the-shelf assessment tests available from testing companies and some professional organizations can be used to measure competencies in specific subject areas as well as general education.
Standards	Sets a level of accomplishment all students are expected to meet or exceed. Standards should imply high quality learning. They do not imply complete standardization in a program; a common minimum level could be achieved by multiple pathways and demonstrated in various ways. Examples: carrying on a conversation about daily activities in a foreign language using correct grammar and comprehensible pronunciation; achieving a certain score on a standardized test.
Student Artifacts	Student produced work for general education, program or course assessment.
Student Surveys (Departmental/ Discipline Level)	Students are questioned regarding quality of the educational experience and progress toward educational, career, and personal goals. Satisfaction rates, job placement rates, job advancement, transfer rates, degree achievement, comfort level in various academic areas are some outcome measures gathered.
Subjective Measures	Rely upon the observation and judgment of one or more persons. The use of a rubric may help an observation and judgment be less subjective (more objective) as it may reduce the variation of interpretations.
Summative Assessment:	The gathering of information at the conclusion of a course, program, or undergraduate career to improve learning or to meet accountability demands. When used for improvement, it impacts the next cohort of

	students taking the course or program. Examples: reviewing student final exams in a course to see if certain specific areas of the curriculum were understood less well than others; analyzing senior projects for the ability to integrate across disciplines.
Taxonomy	Classify learning outcomes into levels of complexity within learning domains.
Technical Certification Exams/Tests	Given by national organizations (Microsoft, Oracle, Sun, Novell, Cisco, etc.), predominantly in the technical skills areas (computers), to measure a student's base of knowledge.
Value Added	The increase in learning that occurs during a course, program, or undergraduate education. Either can focus on the individual student (how much better a student can write, for example, at the end than at the beginning) or on a cohort of students, (whether senior papers demonstrate more sophisticated writing skills - in the aggregate - than freshmen papers). Requires a baseline measurement for comparison.

What Student Will Be Able To Do (Type of Outcome)	Measurable Verbs or Keywords from Bloom's Taxonomy	Possible Assessment Method/Tool	Associated Type of Rubric/Scoring
Show recall or recognition of facts; Knowledge of terminology; specific facts.	Identify*, Recognize*, Select*, Tabulate*, Label*, Match*	Multiple-choice test* (only for noted verbs)	Answer Sheet – Item Analysis
	Cite, Define, Describe, Draw, Label, List, Match, Name, Outline, Quote, Record, Relate, Repeat, Reproduce, Show, State, Tabulate, Trace, Write	Short answer Test, Short Essay Test, Student Product (i.e. drawing, report, activity)	Rubric
Example from BIO 161	Identify and recognize the biological characteristics of the six categories of living organisms.	Departmental Exam	Answer Sheet
Show understanding or application of facts; Grasping (understanding) the meaning of informational materials.	Add*, Classify*, Compute*, Convert*, Subtract*, Translate*	Multiple-choice test * (only for noted verbs)	Answer Sheet – Item Analysis
	Interact (as with people)**	Skills assessment**	Skill checklist with rubric
	Articulate, Characterize, Cite, Compare, Contrast, Defend, Demonstrate, Describe, Differentiate, Elaborate, Estimate, Explain, Express, Extrapolate, Factor, Generalize, Infer, Interpret, Paraphrase, Picture graphically, Report, Restate, Rewrite, Summarize, Trace,	Short answer test, Verbal test (i.e. foreign languages)	Answer Sheet – Item Analysis and/or Rubric for partial credit
		Essay test or Report (i.e. labs, books, activities)	Rubric
Example from ACS 108	Develop critical reading and thinking abilities and apply to college level courses and career development.	Reflective research capstone project	Rubric
Apply or use previously learned data; The use of previously learned information in new and concrete situations to solve problems that have single or best answers.	Act, Adapt, Apply, Articulate, Assign, Calculate, Change, Chart, Classify, Compute, Construct, Demonstrate, Derive, Determine, Develop, Draw, Exercise, Factor, Generate, Graph, Illustrate, Inform, Instruct, Interpret, Manipulate, Modify, Operationalize, Participate, Practice, Predict, Prepare, Produce, Report, Sequence, Show, Simulate, Sketch, Solve, Tabulate, Teach, Transcribe, Transfer, Use, Utilize	Short Answer Test	Answer Sheet – Item Analysis and/or Rubric for partial credit
		Essay Test, Skill Assessment, Student Project, Group or Class Project, Portfolio	Rubric
		Student Product (i.e. work of art, computer program, business plan, weld, etc.	Skill checklist with rubric
Example from ANI 180	Place and edit assets and interactive triggers within the game engine.	Project	Rubric.

What Student Will Be Able To Do (Type of Outcome)	Measurable Verbs or Keywords	Possible Assessment Method/Tool	Associated Type of Rubric/Scoring
The breaking down of informational materials into their component parts, examining (and trying to understand the organizational structure of) such information to develop divergent conclusions.	Audit, Analyze, Categorize, Characterize, Classify, Compare, Contrast, Diagnose, Diagram, Differentiate, Discriminate, Dissect, Document, Explain, Group, Identify, Illustrate, Infer, Inspect, Manage, Order, Outline, Prioritize, Relate, Select, Separate, Subdivide, Summarize, Train, Transform	Essay test, Student Product (i.e. work of art, computer program, business plan, weld, etc.), Student Project, Group or Class Project, Portfolio, Exam	Rubric
Example from CNT 211	Identify and configure maintenance and security implementations including Windows backup, Windows Server Update Services (WSUS), data deduplication, and permissions including NTFS Security as well as share permissions.	Written final exam	Rubric
Creatively applying prior knowledge and skills to produce a new or original whole. Student originates, integrates, and combines ideas into a product, plan, or proposal that is new to him or her.	Abstract, Adapt, Animate, Assemble, Budget, Categorize, Code, Combine, Communicate, Compare, Compile, Compose, Construct, Contrast, Create, Debug, Depict, Design, Develop, Devise, Format, Generate, Hypothesize, Import, Incorporate, Initiate, Integrate, Interface, Model, Modify, Negotiate, Organize, Outline, Plan, Prepare, Prescribe, Produce, Program, Propose, Rearrange, Reconstruct, Refer, Relate, Reorganize, Report, Revise, Rewrite, Specify, Summarize, Write	Essay test, Student Product (i.e. work of art, computer program, business plan, weld, etc.), Student Project, Group or Class Project, Portfolio	Rubric
Example from ART 285	Write a practical business plan for one or more career tracks in the art or performing arts industry.	Business Plan	Rubric
Judging the value of material based on personal values/opinions, resulting in an end product, with a given purpose, without real right or wrong answers.	Appraise, Choose, Compare, Conclude, Contrast, Critique, Defend, Determine, Discriminate, Estimate, Evaluate, Explain, Interpret, Judge, Justify, Measure, Predict, Prescribe, Rank, Recommend, Reframe, Release, Select, Summarize, Support, Test, Validate, Value, Verify	Essay test, Student Product (i.e. work of art, computer program, business plan, weld, etc.), Student Project, Group or Class Project, Portfolio	Rubric
Example from FLP 214	Interpret hydraulic circuit diagrams to solve problems.	Exam.	Rubric

What Student Will Be Able To Do (Type of Outcome)	Measurable Verbs or Keywords	Possible Assessment Method/Tool	Associated Type of Rubric/Scoring
Hands-on activity Laboratory and Clinical Behaviors	Apply, Calibrate, Compute, Conduct, Connect, Construct, Convert, Decrease, Demonstrate, Dissect, Feed, Grow, Increase, Insert, Keep, Lengthen, Limit, Manipulate, Operate, Plant, Perform, Prepare, Remove, Replace, Report, Reset, Set, Specify, Straighten, Test, Time, Transfer, Use, Verify, Weigh	Skills assessment or Lab activity/report	Skill checklist with rubric
		Portfolio	Rubric
Example from CEM 111	<i>Follow the science process in the laboratory by properly collecting and recording data, calculating and analyzing results, and drawing conclusions based on the analyses.</i>	Lab Report	Rubric
Skill or knowledge improvement Increase in skills, comprehension, and ability. Value added	Improve Performance Skills (as in a dance or musical piece), Increase Reading Comprehension, Translate more accurately (e.g., a foreign language), Improve ability to apply information, Improve use of specific techniques (e.g., writing or art).	Pre and Post Test	Answer Sheet – Item Analysis
		Comparison of Pre and Post Skills Checklist	Skill checklist with rubric
		Comparison of Pre and Post Performance Evaluation	Performance parameters with rubric
Example ACS 095	<i>Identify and improve current strengths and needs in areas of academic, personal, and career skills.</i>	On-Course Self-Assessment Pre- and Post-test	On-Course Rubric

Multiple-choice test* (only for noted verbs). While it is possible to develop multiple-choice questions for higher-level measurable verb and keywords, it is uncommon. Sample questions must clearly show higher-level learning.

Possible Assessment Method/Tool	Associated Type of Rubric/Scoring	Examples of Standard of Success – Faculty should establish standards of success appropriate to their stated outcomes.
Multiple-choice test True/False test Fill-in the blank test	Answer Sheet – Item Analysis Answer Sheet – Item Analysis and/or Rubric for partial credit	90% of the students will correctly answer each assessment question. 80% of the students will correctly answer 80% of the questions.
Short answer Test Short Essay Test, Essay test	Rubric for essay exam	75% of the students will score a minimum of 85% on the essay test.
Student Product (i.e. drawing, report, activity) Report (i.e. labs, books, activities) Portfolio	Rubric for portfolio	85% of the students will earn an average of 3 or higher (on a 0-4 scale) on each artifact.
Skill Assessment (i.e. dance exercises) Student Project (i.e. musical performance)	Performance parameters with rubric	80% of the students will earn an overall average of 3 or higher (on a 0-4 scale) on the exercise skills checklist. 80% of the students will score a 3 of 4 or higher (on a 0-4 scale) on each skill.
Skill Assessment, Student Project Class Project	Skill checklist with rubric	70% of the students will score an overall average of 4 or higher on the NAFTA repair checklist.

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