



UNION COUNTY COLLEGE

LEARNING OUTCOMES ASSESSMENT HANDBOOK

Revised 2016



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Introduction

The process of assessment helps determine whether students are learning what faculty think they are teaching. The results of assessment enable faculty to make changes to curriculum/instruction in order to improve student learning.

Assessment involves identifying learning outcomes, creating and implementing the tools used for assessment, and making changes to improve teaching and learning based on assessment data. Assessment is both a professional responsibility and an obligation. As the accrediting body for Union County College, Middle States Commission on Higher Education (MSCHE) requires documentation to show that outcomes are being met and evidence that a “Culture of Assessment” exists at the institution. The process of assessment allows faculty, as experts in their discipline, to take ownership of this process and fulfill these requirements.

All required forms, existing program plans and results are posted on the Learning Outcomes Assessment team site located on Owl’s Nest. Assessment of General Education and key courses identified in Program Assessment Plans should be conducted on a per-semester basis. Results, including a summary of data, proposed changes, and a reassessment of the effectiveness of earlier changes (Closing the Loop) should be discussed among appropriate faculty and posted on the team site no later than May 31 of each year.

Program assessment should include the following:

- Regular review of program learning outcomes
- Program Assessment Plan
- Mapping Program Learning Outcomes (PLOs) to Course Learning Outcomes (CLOs)
- Program Results: Closing the Loop

Course assessment should include the following:

- Regular review of course learning outcomes and their relationship to PLOs
- Course Closing the Loop (for General Education Courses and courses identified as part of a program assessment plan)
- Assessment of CLOs by individual faculty

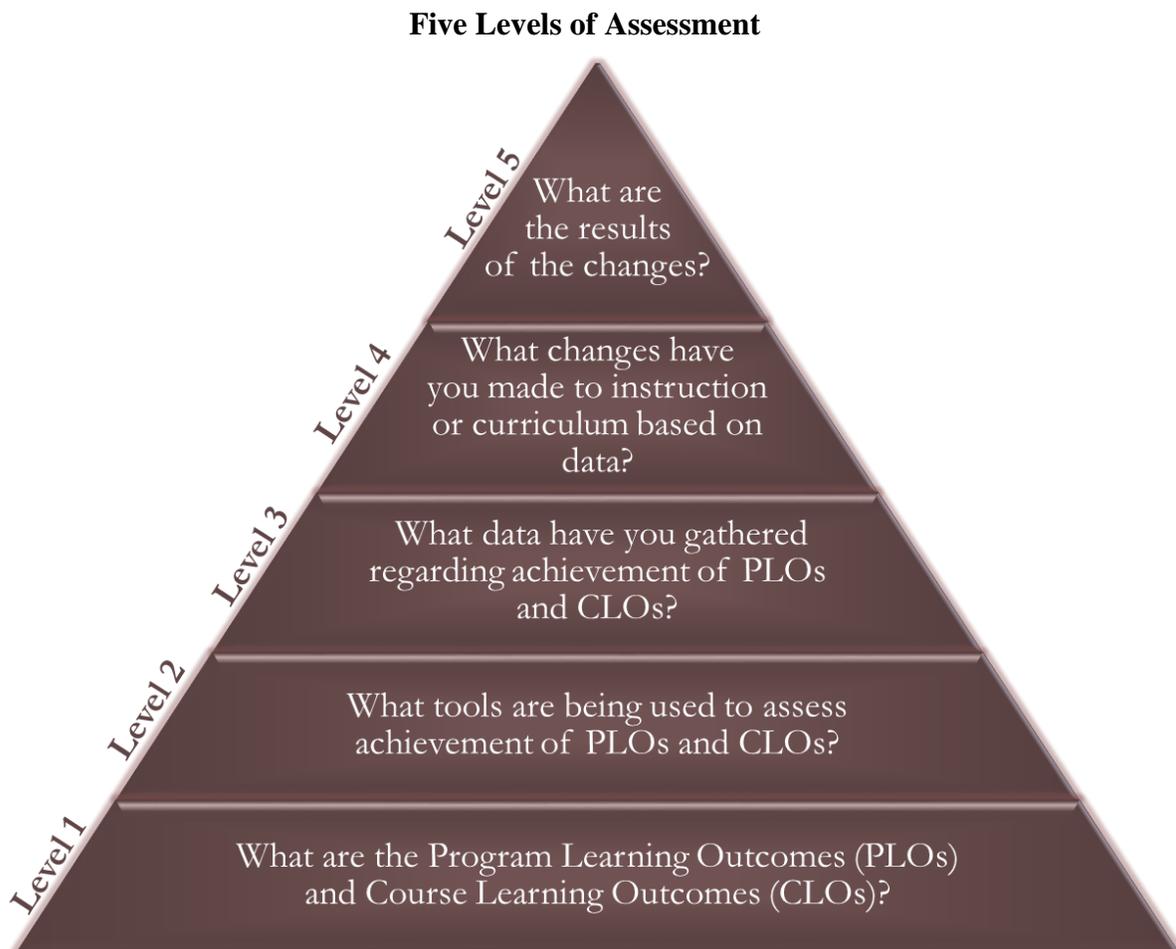
What is assessment?

Generally speaking, assessment is:

- establishing **outcomes** and engaging in a systematic, ongoing process of collecting and analyzing data, making evidence-based changes to instruction/curriculum, and reassessing (aka “closing the loop”) to prove whether or not those changes were effective;
- generating *data* that is meant to ensure that students are learning as effectively as possible;
- a way to help us improve the programs and courses we provide to students.

Data is the evidence that allows us to check the effectiveness of what we do and how we do it. It also helps us demonstrate how our programs, courses, and learning activities:

- support student learning,
- promote student success,
- enhance the institutional priorities and missions of the College and the Divisions.



Purpose of Assessment

A sustainable and continuous cycle is essential for effective assessment as the results determine not only the quality of program/course offerings, but what students learn as a result of successfully completing an academic program or course.

Additional purposes of assessment include:

- **Improve** - assessment provides feedback to determine how academic programs/courses/learning opportunities can be improved
- **Inform** - assessment informs decision-makers of the contributions and impact a program/course has in fostering student success
- **Prove** - assessment should be transparent to demonstrate to students, faculty, staff, and other stakeholders what the program is accomplishing through student learning
- **Support** - assessment provides support for campus decision-making activities such as strategic planning, resource allocation, as well as external accountability activities such as accreditation¹

Benefits of Assessment

Both students and faculty benefit from assessment. A process that helps students focus on where and how to best utilize their time and energy, assessment helps to empower them to become responsible for their own learning. Through multiple opportunities to achieve the desired outcomes, student learning will improve. In addition, as a result of assessment, faculty will be able to obtain useful feedback that can be used to improve courses and programs. More importantly, faculty will have the occasion to collaborate with colleagues both within their divisions and with other disciplines.



¹ Adapted from *The "Why," "What," and "How" of Performance Measurement*, (Terrell, J.D., 1999)

Characteristics of Effective Assessment

Effective learning outcomes assessment should answer these questions²:

1. *How does the program/course contribute to student success and institutional priorities?*
2. *What is the program/course aiming to teach and why?*
3. *How well is the program/course doing it and how do we know?*
4. *What do we want students to know/be able to do as a result of completing the program/course?*
5. *How can improvements be made to the curriculum/instruction of the program/course?*
6. *How do the improvements we make contribute to our intended end results?*
7. *How can student learning be improved?*

Key Performance Indicators

While academic assessment is composed of three elements, including General Education learning outcomes assessment, Program/Course learning outcomes assessment, and five-year Program Reviews, a number of additional measures address student success at the institutional level. Six of the 13 college-wide assessment approaches have been identified as Key Performance Indicators (KPIs) and are incorporated in five-year program reviews.

KEY PERFORMANCE INDICATORS (TARGET SUCCESS METRICS)
Graduation Rates
Graduation Raw Numbers
Course Completion Rates
Retention
Transfer Rates
Job Placement

² Adapted from Bresiani, Moore Gardner, and Hickmott, 2009

Academic Assessment

As previously mentioned, academic assessment is comprised of General Education Learning Outcomes Assessment, Program/Course Learning Outcomes Assessment, and five-year Program Reviews.

1. General Education Assessment

Assessed at institutional and course levels, General Education is measured through General Education Learning Outcomes (Institutional Learning Outcomes), program learning outcomes, and course learning outcomes. They are also assessed through standardized testing of students using the ETS Proficiency Profile and through course-specific assessment in ENG 101 and 102, HIS 101 and 102, PSY 101, and MAT 119 and MAT 125. This course-specific assessment must be documented in the Course Assessment: Closing the Loop form (Appendix A).

Defined as the skills and abilities with which every student graduates, General Education Learning Outcomes (Institutional Learning Outcomes) at Union County College include:

1. Oral and written communication:

Upon completion of their degree program, students will be able to communicate clearly, concisely and accurately through written and oral formats for a variety of academic, professional and creative purposes.

2. Scientific/critical thinking and quantitative reasoning:

Upon completion of their degree program, students will be able to make decisions based on research and analysis of relevant data and information and use quantitative concepts to identify and solve problems from a variety of contexts.

3. Information literacy/technological competencies:

Upon completion of their degree program, students will be able to use technology in a variety of formats in order to determine relevant information necessary for critically evaluating sources and successfully applying the information to solve problems.

2. Program Learning Outcome Assessment

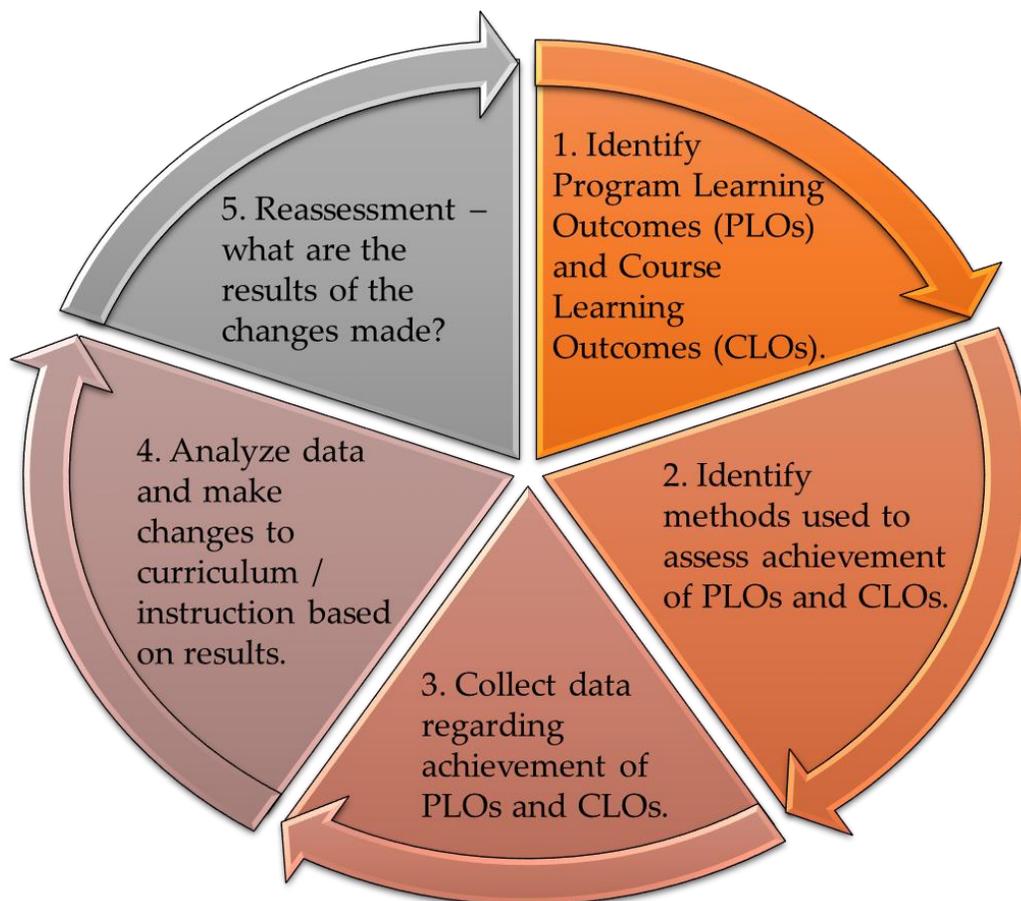
Program Learning Outcomes Assessment requires the following documentation:

- Program Assessment Plan (Appendix B)
- Mapping PLOs to CLOs (Appendix C)
- Program Assessment: Closing the Loop (Appendix D)

It is important to remember that faculty members have choice and flexibility when choosing the methods through which they will conduct program assessment. Some methods of assessment include:

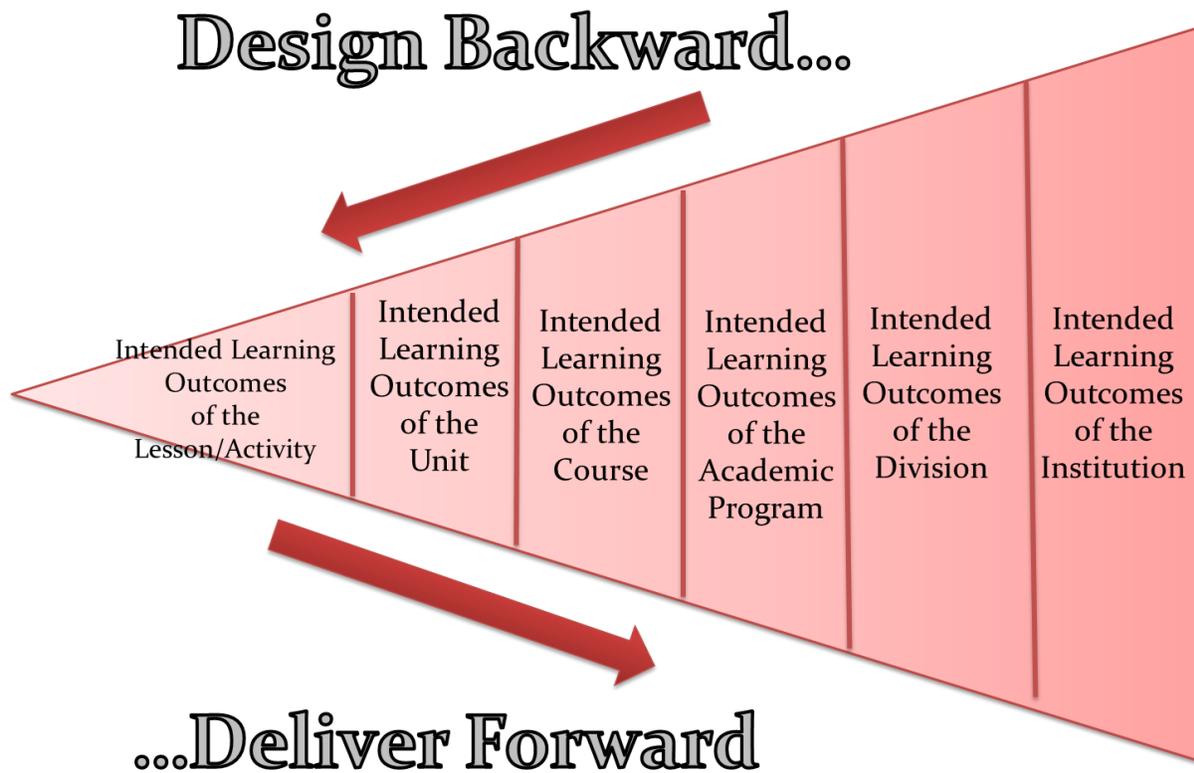
- Key courses
- Capstone experiences
- Standardized exams
- Portfolios
- Other approaches selected by faculty

Program Assessment is a five-step continuous cycle that can be done on a yearly or a semesterly basis.



When implementing or revising a Program Assessment Plan, ask yourself:

- Step 1 – Identify PLOs and CLOs: What is it you want the students to **know and be able to do upon completion**?
- Step 2 – Identify methods used to assess achievement of PLOs and CLOs: What **tools** are you using to assess achievement of these learning outcomes?
- Step 3 – Collect data regarding the achievement of PLOs and CLOs: What **data** have you gathered regarding achievement of these learning outcomes?
- Step 4 – Analyze data and make changes to curriculum/instruction based on results: How have you **changed** your instruction/curriculum based on the assessment data?
- Step 5 – Reassessment: what are the results of the changes made? Aka Closing the Loop: What **evidence** do you have that the changes you made improved student learning?



Step 1 – Identify PLOs and CLOs

Start with expected outcomes of student learning at both the program (Program Learning Outcomes) and course levels (Course Learning Outcomes) that are:

Program Learning Outcomes (PLOs)	Course Learning Outcomes (CLOs)
Clear	Clear
Measurable	Measurable
Specific to the discipline	Specific to the discipline
Embed 3 or more General Education Learning Outcomes (Institutional Learning Outcomes)	Correlate to PLOs
	Embed 3 or more General Education Learning Outcomes (Institutional Learning Outcomes)
Are identified in the College catalog	Are identified in the Master Course Syllabus

EXAMPLES:

PROGRAM LEARNING OUTCOMES

- Students will be able to **discuss** the ethical standards that guide research in psychology.
- Students will be able to **demonstrate** information literacy through familiarity with and the effective use of engineering information resources.
- Students will be able to **correlate** theory and practice in the chemical sciences.

COURSE LEARNING OUTCOMES

- Students will be able to **analyze** performance of a contract and determine whether contract has been breached.
- Students will be able to **apply** the scientific method to analyze environmental problems and draw conclusions from data and evidence.
- Students will be able to **explain** how law has impacted sport and the legal terminology found in sport law.

Step 2 – Identify methods used to assess achievement of PLOs and CLOs

Discipline-specific assessment methods selected by faculty should be direct (integrated learning). These direct methods include:

- Key courses
- Portfolios
- Capstone experience
- Comprehensive exams

Step 3 – Collect data regarding achievement of PLOs and CLOs

Data collected should:

1. Be meaningful - if you're not sure how you'll use the information to measure student learning or program effectiveness, then consider whether it's necessary to collect it
2. Reflect intended skills/knowledge established in PLOs and CLOs

3. Be substantial enough to make decisions/changes (if changes are necessary)

Step 4 – Analyze data and make changes to curriculum/instruction based on results

When analyzing the data, keep these questions in mind:

1. *How well did students do in comparison to the expected learning outcomes of the course/program?*
2. *Did the content of the course/program provide students sufficient learning opportunities to be successful?*
3. *Where can improvements in student learning happen?*
4. *What changes can be made to facilitate possible improvements?*

Also be sure to discuss and share results with faculty in the program, in the division, and across divisions to facilitate collaboration. These discussions should take place at division meetings, on Assessment Day, and with administration in Annual Reports.

Step 5 – Reassessment: what are the results of the implemented changes?

Throughout the following academic year, implement the documented changes that were made to curriculum/instruction. Then gather and analyze the new data and ask yourself:

1. *Did the implemented changes improve results?*
2. *Did the implemented changes generate the same results?*
3. *Did the implemented changes not produce desired results?*

This reassessment is also referred to as “closing the loop.”

Writing Learning Outcomes

The information in a learning outcome should be as specific as possible and measure a BEHAVIOR as opposed to a thought or a belief. Take care with double-barreled outcomes (i.e., if the outcome has an “and” in it), as they may be difficult to assess. Consider whether splitting it into two outcomes will make it easier to report results (*how would you report your progress if one part of the outcome was achieved, but not the other?*).

A good way to start thinking about learning outcomes is to ask yourself:

How will I know that students know/are able to do...?

As a result of program assessment, it may be decided that a program learning outcome or a course learning outcome may need to be changed completely, or simply refined, to make it easier to assess. Below are some examples of refined learning outcomes.

- x Students will understand the biological problems caused by human misuse of the environment.
- ✓ Students will be able **to discuss** the biological problems caused by human misuse of the environment.

- x Students will appreciate cultural differences in society.
- ✓ Students will be able **to summarize** cultural differences in society.

- x Upon successful completion of the course, students will know about global market trends.
- ✓ Upon successful completion of the course, students will be able **to analyze** global market trends.

Bloom's Taxonomy – the classification of levels of the cognitive process – is a helpful tool when writing learning outcomes. It is important to have outcomes reflect the level of thinking that is being measured through the assessment method and learning activity. For more specific verbs, see Appendix E.

Program Assessment Method Guidelines

1. Capstone Experience

Capstone experiences provide a final common experience for students to demonstrate the knowledge and skills they have acquired throughout the program of study. A Capstone experience is specific to the discipline by integrating student work that demonstrates knowledge, concepts, and skills associated with the entire sequence of courses in a program. The evaluation of this work is the means of assessing learning outcomes.

A useful assessment tool, Capstone experiences may also consist of experiences (e.g., internships) that broaden a student's understanding of the work environment and the communities in which they will work and contribute to upon completion of a degree. Assessment of the Capstone experience should be repeated each year to evaluate efficacy. The collecting and analyzing of the new data is essentially "closing the loop," though in reality the loop is never closed as assessment is a systematic, continuous and ongoing process.

2. Comprehensive Standardized Exam

Various companies, such as the Educational Testing Service, offer standardized tests for different disciplines that are administered at the national level. These tests provide the opportunity for widespread comparison to comparable programs of study on a larger scale (e.g., the Organic Chemistry American Chemical Society (ACS) National Exam). Scores on tests like licensure exams also can be used as direct evidence of student learning. Program faculty might also decide to develop a blueprinted exam for majors that is reflective of the program's learning outcomes. Assessment using a standardized or a blueprinted exam should be repeated each year to evaluate efficacy. The collecting and analyzing of the new data is essentially "closing the loop," though in reality the loop is never closed as assessment is a systematic, continuous and ongoing process.

3. Key Courses

The assessment of key courses within a program of study provides evidence of what and how students are learning in the classroom. Strategically selected courses must contain course learning outcomes that satisfy every program learning outcome and run regularly in an effort to collect the most representative sample of data possible. Ideally, assessment of key courses should include at least two 100-level courses and at least two 200-level courses, with one of those courses addressing at least two PLOs.

Step 1 – Map the program curriculum by completing the “Mapping PLOs to CLOs” form. This provides an overview of the courses with course learning outcomes that will best assess the program. When mapping, ensure that every PLO is being assessed through an appropriate CLO.

Step 2 – For each of the selected courses decide which learning activities will be utilized in each course and identify the evaluation tool for those learning activities.

Evaluation tools include:

- Rubrics
- Research papers
- Oral presentations
- Journaling
- Quiz
- Pre-test/post-test
- Concept maps
- Service learning
- Case studies
- Performances
- Internships
- Collaborative projects

Step 3 – Collect data from each assessment tool and document the results in column three of the “Program Assessment: Closing the Loop” form.

Step 4 – Document any changes to be made to instruction/curriculum based on the data.

Step 5 – Reassess after implementing the documented changes by gathering and analyzing new data to evaluate efficacy. The collecting and analyzing of the new data is essentially “closing the loop,” though in reality the loop is never closed as assessment is a systematic, continuous and ongoing process.

4. Portfolio

A portfolio assessment is a direct measure of learning through a collection of student work related to specific learning outcomes and skills.

In general, components of a portfolio assessment include:

Step 1 – Assessable program learning outcomes.

Review PLOs to ensure they are assessable.

Step 2 – Appropriate comprehensive student portfolio.

Select student portfolio to be produced at or near the end of the Program. The Portfolio must contain a variety of tasks (e.g., researching, writing, analyzing, organizing, etc.).

Step 3 – Portfolio Review method.

Create a Portfolio review method by associating PLOs with specific skills, identifying items in the Portfolio or project with specific skills, establish a rating system/form that is easy to use.

Step 4 – Portfolio Review session.

Plan a Portfolio review session by selecting reviewers (e.g., Advisory Committee members, employers, academics from other institutions), schedule to accommodate the reviewers, and explain

the Portfolio, project, and review sheet. If research was required, it may also be helpful to provide reviewers with a brief list of what students were supposed to find.

Step 5 – Report of results.

After the review session, results should be compiled and analyzed in a report. These results should also be reviewed by others (Advisory Committee, program faculty, division faculty, etc.). Through this review, deficiencies and strengths in achievement of student learning outcomes should be identified.

Step 6 – Follow-up adjustments to Program.

Results of the assessment should be followed up with a plan to improve the program. Any resulting changes should be reviewed with faculty and other appropriate stakeholders. Changes made should be documented in the “Program Assessment: Closing the Loop” form and posted to the Learning Outcomes Assessment Team Site on Owl’s Nest.

Step 7 – Repeat assessment to evaluate efficacy.

Repeat steps 4-6 regularly (aka Closing the Loop). When done consistently, this process should document the results/effectiveness of program changes. Over time, it may help to establish a regular meeting date for the portfolio review. The collecting and analyzing of the new data is essentially “closing the loop,” though in reality the loop is never closed as assessment is a systematic, continuous and ongoing process.

Required Documentation and Uploading

The documentation of program assessment requires the completion of the following three (3) forms:

1. Program Assessment Plan (Appendix B)
2. Mapping PLOs to CLOs (Appendix C)
3. Program Results: Closing the Loop (Appendix D)

To complete the Program Results: Closing the Loop form, begin by listing PLOs in column one. Next, identify in column two the assessment methods and tools used to assess each PLO.

As data is collected from each assessment tool the results are documented in column three:

Program Learning Outcomes (PLOs) <i>List as they appear in the catalog.</i>	Assessment Methods <i>What methods (e.g., key courses, standardized tests, capstones, portfolios, etc.) are you using to assess the achievement of PLOs?</i>	Summary of Collected Data <i>*AY: 20 _____</i> <i>What data have you collected and analyzed from your assessment methods? Be specific and always keep records/documentation. *Please indicate for which academic year the data is collected.</i>	Changes Made Based on Data <i>What changes have you made to the curriculum or instruction based on your data findings?</i>	Closing the Loop <i>*AY Reassessing: 20 _____</i> <i>Reassessing - does the data from your reassessment indicate that the changes you made were effective? *Please indicate the academic year that reassessment is taking place.</i>

After reviewing, analyzing and discussing the data/results, faculty should propose any changes in the curriculum and document them in column four:

Program Learning Outcomes (PLOs) <i>List as they appear in the catalog.</i>	Assessment Methods <i>What methods (e.g., key courses, standardized tests, capstones, portfolios, etc.) are you using to assess the achievement of PLOs?</i>	Summary of Collected Data <i>*AY: 20 _____</i> <i>What data have you collected and analyzed from your assessment methods? Be specific and always keep records/documentation. *Please indicate for which academic year the data is collected.</i>	Changes Made Based on Data <i>What changes have you made to the curriculum or instruction based on your data findings?</i>	Closing the Loop <i>*AY Reassessing: 20 _____</i> <i>Reassessing - does the data from your reassessment indicate that the changes you made were effective? *Please indicate the academic year that reassessment is taking place.</i>

These changes are intended to be implemented over the course of the next semester or academic year (depending on the cycle of assessment chosen). The new data from that reassessment period is then documented in column five:

Program Learning Outcomes (PLOs) <i>List as they appear in the catalog.</i>	Assessment Methods <i>What methods (e.g., key courses, standardized tests, capstones, portfolios, etc.) are you using to assess the achievement of PLOs?</i>	Summary of Collected Data <i>*AY: 20 _____</i> <i>What data have you collected and analyzed from your assessment methods? Be specific and always keep records/documentation. *Please indicate for which academic year the data is collected.</i>	Changes Made Based on Data <i>What changes have you made to the curriculum or instruction based on your data findings?</i>	Closing the Loop <i>*AY Reassessing: 20 _____</i> <i>Reassessing - does the data from your reassessment indicate that the changes you made were effective? *Please indicate the academic year that reassessment is taking place.</i>

Once assessment forms are completed, they must be uploaded to the Learning Outcomes Assessment Team Site on Owl’s Nest (<http://owlsnest.ucc.edu/depts/LOA/Shared%20Documents/Forms/AllItems.aspx>). Examples of completed assessment forms can be found in that repository.

Using Canvas for Assessment

Learning management systems can ease assessment by generating reports, mapping PLOs and CLOs, and aligning results with General Education Learning Outcomes (Institutional Learning Outcomes). See the “Faculty Lounge” video tutorials in Canvas on mapping evaluation tools to course learning outcomes.

FAQs

1. How is assessment different from grading?

Grading measures how students perform on a given assignment or exam. Learning Outcomes Assessment measures whether students are acquiring the knowledge and the skills that we have identified as the objectives of the course/program.

2. *I have filled out a Closing the Loop form. Am I done?*

No. To be effective, assessment and re-assessment must be done every year. Assessment is a continuous cycle aimed at improving educational effectiveness. Therefore, a Closing the Loop form should be completed for each academic year.

3. *Do I have to make changes to all the PLOs/CLOs?*

No. It is often more effective to concentrate on improving a few learning outcomes at a time.

4. *Do I have to change everything all the time?*

No. Sometimes data may indicate that changes are not necessary. Other times it may be decided that the results are due to the cohort and another assessment cycle may be more representative of how well students are learning. This is why it is crucial to share and discuss assessment results among fellow faculty within the discipline, as well as across divisions, in order to collaborate and make decisions most effectively.

5. *How do I know the assessment is reflective of the students in the actual major/program?*

You do not have to identify and only assess the students who are in your program. Rather, you are assessing the skills taught in the course.

6. *Do we have to assess every section of a key course in order to do an effective assessment?*

No, it is permissible to assess a sampling of the sections.

7. *How do I know which courses should be assessed as key courses?*

Select the courses that most closely reflect the program learning outcomes. It is also helpful to select courses that run regularly.

8. *Where can I find examples of different assessment methods?*

You can find examples of different assessment methods on the [LOA team site on Owl's Nest](#). Here is one example of each method:

- Key Courses method - American Studies
- Comprehensive Exam method - Chemistry
- Portfolio method - Paralegal Studies

Additional Resources

1. Bloom's Taxonomy

<http://www.bloomstaxonomy.org/Blooms%20Taxonomy%20questions.pdf>

2. Degree Qualifications Profile (DQP)/Tuning Project

<http://degreeprofile.org/>

3. National Institute for Learning Outcomes Assessment (NILOA)

<http://www.learningoutcomesassessment.org/>

Appendix A – Course Results: Closing the Loop

Course:		Date of Implementation:	
Course/Program Assessor:			

Course Learning Outcomes (CLOs) <i>List as they appear on the Master Course Syllabus.</i>	Assessment Methods <i>What methods (e.g., exams, presentations, research papers, quizzes, essays, etc.) are being used to assess the achievement of CLOs?</i>	Summary of Collected Data <i>*AY: 20_____</i> <i>What data has been collected and analyzed from your assessment methods? Be specific and always keep records/documentation. *Please indicate for which academic year the data is collected.</i>	Changes Made Based on Data <i>What changes have been made to the curriculum or instruction based on your data findings?</i>	Closing the Loop <i>*AY Reassessing: 20_____</i> <i>Reassessing - does the data from your assessment indicate that the changes made were effective? *Please indicate the academic year that reassessment is taking place.</i>

Appendix B – Program Assessment Plan

Academic Program:		Email:	
Degree:		Phone:	
Division:		Date of Implementation:	
Program Assessor:		Date of Revision: <i>(if applicable)</i>	

Union County College Mission: *Union County College...Transforming Our Community One Student at a Time*
 “Our mission is guided by our commitment to empower students to achieve their goals by providing access to high quality and affordable higher education to the residents of Union County. As a comprehensive community college with a diverse student population, we provide career programs, transfer programs, developmental education, and lifelong-learning opportunities, with a focus on excellence in all that we do.”

Briefly describe how this program supports Union County College’s Mission.

Academic Affairs Mission: The Academic Affairs Division is committed to on time completion and to preparing students to be successful in their career pathways. The Division promotes and ensures academic quality and cultivates a culture of student and faculty engagement. A student-centered environment provides the context for the development of critical thinking and scientific reasoning skills, oral and written communication skills, and information and technological literacy skills. Embedded in the mission of the Division is the need to continually improve through the use of predictive and learning analytics and the assessment of student learning and effective instructional practices.

Program Learning Outcomes
 Program Learning Outcomes (PLOs) must have Institutional (General Education) Learning Outcomes embedded, including scientific/critical thinking and quantitative reasoning; oral/written communication; and information literacy/technological competencies. Generally, there should be about 5-8 PLOs and they should answer the question, "What will the students be able to do upon completion of the program?"

Please list your Program Learning Outcomes as they appear in the catalog.

- 1.
- 2.
- 3.
- 4.
- 5.

Assessment Methods
 What methods (e.g., assessment of key courses, capstone projects, portfolios, comprehensive standardized exams, etc.) is your program using to assess the achievement of PLOs? Please note, if your program is assessing key courses, there must be an attached copy of the completed "Mapping PLOs to CLOs" grid, which is used to align PLOs to CLOs from the courses selected for assessment.

Briefly describe the methods your program will use to assess its success.

Program Assessment: Closing the Loop
 After completing an assessment cycle (at the end of a semester, or at the end of the year), please attach a copy of the completed "Program Assessment: Closing the Loop" form, which is used to clearly identify the methods of assessment used to measure student achievement, the data collected via assessment methods, the changes made based on the data, and the impact the changes had on Program Learning Outcomes.

Appendix C – Mapping PLOs to CLOs

Program:		Program Assessor:	
Degree:		Date of Implementation:	

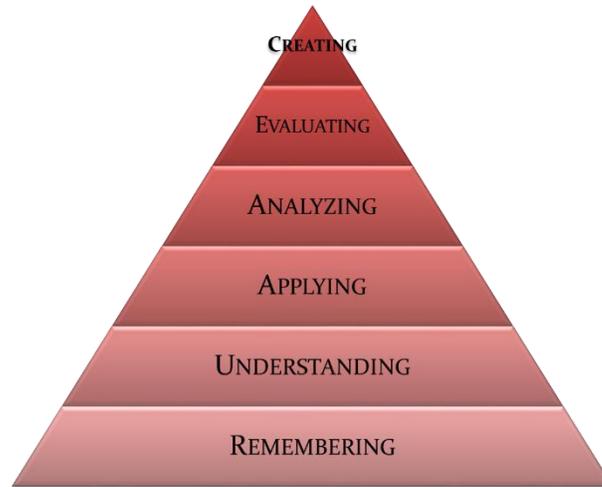
PLOs <i>List as they appear in the catalog. ↓</i>	CLOs <i>For each course being assessed, list the CLOs that align with the PLO.</i>					
Course Code & No. <i>List only the courses you are using to assess the program. →</i>						

Appendix D – Program Results: Closing the Loop

Program:		Program Assessor:	
Degree:		Date:	

Program Learning Outcomes (PLOs) <i>List as they appear in the catalog.</i>	Assessment Methods <i>What methods (e.g., key courses, standardized tests, capstones, portfolios, etc.) are you using to assess the achievement of PLOs?</i>	Summary of Collected Data *AY: 20_____ <i>What data have you collected and analyzed from your assessment methods? Be specific and always keep records/documentation. *Please indicate for which academic year the data is collected.</i>	Changes Made Based on Data <i>What changes have you made to the curriculum or instruction based on your data findings?</i>	Closing the Loop *AY Reassessing: 20_____ <i>Reassessing - does the data from your reassessment indicate that the changes you made were effective? *Please indicate the academic year that reassessment is taking place.</i>

Appendix E – Bloom’s Taxonomy



Bloom’s Taxonomy					
lower order thinking skills			higher order thinking skills		
REMEMBER (to know specific facts, terms, concepts, principles or theories)	UNDERSTAND (to interpret, to compare and contrast, or to explain)	APPLY (to solve problems; to apply knowledge to a situation)	ANALYZE (to identify parts, relationships, and organizing principles)	EVALUATE (to integrate ideas into a solution, to propose an action plan)	CREATE (to judge the quality of something based on its adequacy, value, logic or use)
recognize identify define indicate label list select name recall retrieve	interpret clarify paraphrase represent translate exemplify illustrate classify categorize summarize abstract generalize infer conclude extrapolate interpolate predict compare contrast map match explain construct model	execute carry out compute implement use investigate predict dramatize	differentiate discriminate distinguish focus select organize find integrate outline structure attribute deconstruct appraise determine diagram experiment solve	check coordinate detect monitor test critique judge assemble collect compose construct manage formulate plan	generate hypothesize plan design produce construct assess choose decide rate revise select

Adapted from Anderson and Krathwohl, 2001, pp. 67–68.