



**NORTHEASTERN**  
STATE UNIVERSITY

**Assessment Handbook: Academic and Co-Curricular Student  
Learning Outcomes**

Adapted from Youngstown State University and Marymount University

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## **Welcome Section**

## University Mission

Founded on the rich educational heritage of the Cherokee Nation, the campuses of Northeastern State University provide its diverse communities with lifelong learning through a broad array of undergraduate, graduate, and professional doctoral degree programs. With high expectations for student success, the University provides quality teaching, challenging curricula, research and scholarly activities, immersive learning opportunities, and service to local and professional communities. The institution's dedicated faculty and staff offer a service-oriented, supportive learning environment where students prepare to achieve professional and personal success in a multicultural and global society.

## University Vision

Northeastern State University shapes the future of its region as the educational partner of choice, setting a standard of excellence by serving the intellectual, cultural, social, and economic needs of the University's diverse communities.

## Degrees of Excellence

The University Mission and Vision support the institutional priorities of academic and scholarly excellence, student development and success, and institutional effectiveness through dynamic assessment and measurement. Guided by these priorities, NSU established an infrastructure to sustain excellence in the 21st century through a culture of assessment and continuous improvement. The Degrees of Excellence outcomes allow all NSU stakeholders to more clearly understand the connections between the NSU educational experience and cultivated skill sets needed after graduation. They also provide a foundation for meaningful assessment at the institutional level. These outcomes provide evidence of student learning as well as data which can be used to improve institutional communication, professional practices, and educational quality.

## The Degrees of Excellence Institutional Learning Outcomes (DOE ILO's)

The DOE ILO's articulate high expectations for students' success, providing an inclusive framework for a distinctive educational experience emphasizing lifelong learning, intellectual growth, citizenship, and social responsibility.

The DOE ILO's serve as a foundation for an integrated campus-wide assessment system, incorporating assessment strategies already in place at the course, general education, program, and co-curricular levels.

The Degrees of Excellence ILO's are summarized as follows:

- **Intellectual skills**—emphasizing analytic inquiry, information literacy, engaging diverse perspectives, quantitative fluency, and communication fluency.

- **Integrative knowledge**—emphasizing the ability to produce, independently or collaboratively, an investigative, creative, or practical work that draws on specific theories, evidence, tools, and methods from diverse perspectives.
- **Specialized knowledge in the major**—emphasizing student competency in the program outcomes of the major field(s) of study.
- **Capstone Experience in the Baccalaureate Degree**—emphasizing the integration of the major with baccalaureate degree expectations reflecting the intersection of academic and post-baccalaureate settings.
- **Citizenship**—emphasizing leadership and engagement, experiential learning, cultural foundations, and personal and career development.

### **NSU Institutional Assessment Plan**

Most recently approved by the Student Learning and Assessment Committee, The Office of Academic Affairs, and the President's Cabinet in 2017, the NSU Institutional Assessment Plan articulates a methodical system of improving the quality of degree and co-curricular programs at NSU through assessment of student learning. NSU's assessment plan, grounded in the university mission and vision, aligns with our institutional priorities and strategic goals as articulated in the NSU Strategic Plan.

Click [here](#) to view NSU's Institutional Assessment Plan.

## **Purpose Section**



## **Purpose of this Handbook**

The purpose of this handbook is to assist faculty and staff in the assessment of student learning. This handbook will include instruction and examples at the various points of the assessment cycle. This handbook is meant to be a tool that introduces assessment concepts and processes while providing relevant examples of possible academic and co-curricular assessment measurements.

## **Purpose of Assessment**

Assessment demonstrates the relationship between student learning and educational experiences. Evidence gleaned from assessment informs discussion and decisions regarding teaching strategies, curriculum, program outcomes, and future assessments. Faculty and students benefit from clarity of course, program, and degree expectations with standards of evaluation within each. Assessment similarly explores the relationship of relevant variables to the effective implementation of the institutional mission and strategic vision. A robust assessment system provides valuable supporting evidence that NSU meets the threshold standards of accountability as defined by our institutional accrediting agency, the Higher Learning Commission.

The Oklahoma State Regents for Higher Education require each Oklahoma college and university to assess the following four categories: (1) entry level to determine academic preparation and course placement; (2) general education assessment; (3) academic program learning outcomes assessment; and (4) student engagement and satisfaction.

Student learning is directly assessed at various levels. The DOE ILO's serve as a foundation for an integrated campus-wide assessment system, incorporating assessment strategies already in place at the course, general education, program, and co-curricular levels. Program learning outcomes can be easily aligned with the *Degrees of Excellence* institutional learning outcomes. Existing program and course assessments can be used to measure the institutional learning outcomes. The *Degrees of Excellence* institutional learning outcomes serve as benchmarks and a blueprint for current and future work on program and course outcomes.

## **Why do we assess Student Learning?**

Data collected through the institutional plan framework assists the following constituent groups:

- Students to improve their educational experience and personal development;
- Faculty to modify and improve course content and design;
- Programs to modify and improve curriculum, to review the efficacy of learning outcomes, to document evidence of student learning and program success, and to improve assessments;
- Colleges to prioritize the allocation of resources and monitor the quality and alignment of their degree programs to the mission and strategic plan;
- Academic and support services staff to modify and improve student programming and services; and

- Senior administration to evaluate the quality of degree programs and support services and monitor the institution's effectiveness in executing its mission.

### **Benefits of Learning Outcomes Assessment**

When conducted properly, learning outcomes assessment has benefits for the entire institution. It benefits students by ensuring that they master the material of their degree program and by providing academic and professional programs that are responsive to both their and society's needs. It benefits faculty by providing the tools necessary to lead curricular renewal and development. Finally, it benefits the entire institution by giving the institution documented evidence of student learning and achievement, thereby indicating that the institution is faithfully meeting its mission and goals.

## **Assessment Process**

## Assessment Personnel and Leadership

### Key Assessment Roles and Expectations

For learning outcomes assessment to be truly effective, it must be a university-wide process. At NSU, there are four primary groups directly involved with an assessment activity:

1. The **Faculty** develops learning outcomes, assess student performance, and provide the necessary analysis to understand learning outcomes in their programs;
2. The **Program/Department chairs** and/or **Assessment coordinators** manage the assessment process within their programs and submit yearly assessment reports that provide evidence of activity;
3. The **Executive Director of Planning and Assessment and the Office of Institutional Effectiveness** coordinate and support the overall effort and provide methodological and technical support throughout the process. This office also posts the student learning outcomes reports to the online archive annually; and
4. The **Student Learning Assessment Committee**, consisting of representatives from all the colleges and several divisions in the University, reviews and advises program level assessment activity to ensure that processes are effective and in line with requirements of regional accreditation. The committee reviews all program student learning assessment plans and reports, and generates specific recommendations for improvement based on them. from which specific recommendations for improvement are generated.

### Assessment Governance

The Office of Academic Affairs coordinates student learning assessment in collaboration with the Office of Institutional Effectiveness. These offices work closely with the Student Learning Assessment Committee, the General Education Committee, college assessment coordinators, department chairs, and Student Affairs assessment coordinators.

The NSU assessment process is student-centered and faculty/staff driven. The primary emphasis for student learning assessment is at the program level where faculty establish the appropriate program learning outcomes, develop the curriculum, and determine the strategy to provide evidence of student achievement of learning outcomes. Institutional assessment efforts, such as surveys of student engagement and satisfaction or campus climate student engagement and satisfaction or campus climate surveys, are centrally administered to supplement programmatic assessment initiatives. Data from assessment activities are shared among programs, colleges, relevant committees, and administration.

### Coordination of Assessment Activities

The Office of Academic Affairs coordinates institutional and academic program assessment. The Director of Planning and Assessment coordinates student learning outcomes and institutional assessment in collaboration with the Office of Institutional Effectiveness. The Director of Planning and Assessment works with various university committees, deans, chairs, directors,

administrators, individual members of faculty and staff, and students in advancing these efforts.

Areas involved in delivering academic or student support services report to the division under which they are organizationally aligned. Assessment activities for units aligned to Academic Affairs are coordinated by the Director of Planning and Assessment. Assessment activities for programs within units aligned to the division of Student Affairs are coordinated by the Assistant Vice President for Student Affairs. These positions work with the Office of Institutional Effectiveness to provide feedback on data associated with the achievement of the Degrees of Excellence.

## The Process

### NSU Assessment Cycle

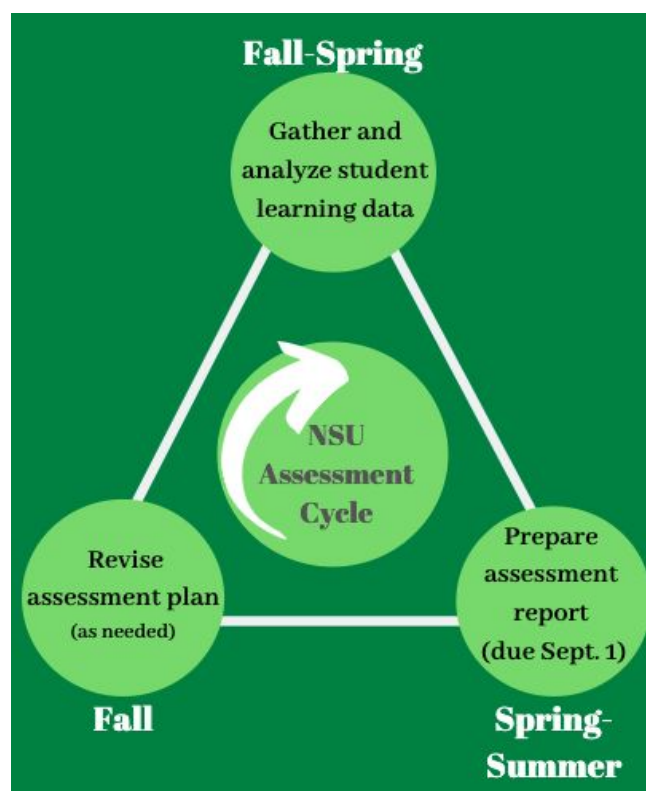
NSU's assessment cycle is represented by the following image.

Since the primary goal of learning outcomes program assessment is to continue the improvement of quality education offered by Northeastern State University, the process is cyclical in nature. Assessment is an ongoing process that should grow and change as programs evolve and develop.

Every Fall-Spring semester faculty and staff should be gathering and analyzing data from the previous assessment year.

During the Spring-Summer semesters, faculty and staff should be preparing their data and assessment reports for submission.

Assessment Reports are due September 1.



At the end of the assessment cycle, in the Fall semester, faculty and staff should be reviewing and revising their assessment plan as needed.

### Chalk and Wire

Chalk and Wire is the assessment management system used to assess student learning, collect and store assessment data, and analyze assessment results. Programs are encouraged to utilize this tool to facilitate their assessment process.

***Need help with Chalk and Wire?***

The Center for Teaching and Learning offers one-on-one Chalk and Wire training. To set up an appointment or for more information, please contact via phone or email provided below.

**Center for Teaching and Learning**

Phone: 918-444-5855

Fax: 918-458-2382

E-mail: [ctl@nsuok.edu](mailto:ctl@nsuok.edu)

**Monday - Friday, 8 a.m. - 5 p.m.**

## **Assessment Planning**

## Assessment Plan - General Information

The assessment plan template outlines a systematic approach to reviewing the Degrees of Excellence institutional learning outcomes and the student learning experience of the academic degree programs. It is a document outlining:

1. Department or program learning outcomes, and how those outcomes align to the DOE ILO's;
2. The assessment methods used to demonstrate achievement in each outcome;
3. The timeframe for collecting and reviewing the data;
4. The performance target indicating the necessary assessment score to achieve competency in an outcome; and
5. The individual(s) responsible for the collection and review of the data.

Assessment planning facilitates the documentation of outcome assessment activities while breaking the assessment cycle into smaller and more manageable tasks. Additionally, the plan will help to identify where support may be needed. A simple, straightforward assessment plan includes:

**What** students are expected to learn. The Degrees of Excellence institutional learning outcomes represent the competencies associated with earning a baccalaureate degree at NSU. Each program determines student competencies and learning expectations that align with the DOE ILO's through program learning outcomes.

**Where** in the curriculum students learn and apply the knowledge and skills specified in the Degrees of Excellence and the program learning outcomes. Outcome measures can be embedded into the curriculum, or the program may use external outcome measures such as national exams. external outcome measures, such as national exams, may be used. Embedding the assessment into existing work may be advantageous in that it is a customary component of the student learning experience. There is no significant additional work for faculty, staff, or students, there are no additional costs, and the assessment process is invisible to the student. However, additional assessments, such as a national standardized exam may add the opportunity to compare NSU students to others. When using either an embedded or an added measure, it is important to ensure that the assessment method aligns effectively to the outcome. Separate or additional assessment methods are not mandatory when assessing the DOE ILOs. As program learning outcomes are aligned to the institutional outcomes, it is anticipated that the activity or assessment method that measures student learning in a particular program outcome can also be used to measure student learning in the corresponding institutional outcome.

**When** each outcome is assessed.

**How** program faculty/staff know that students are meeting the performance targets. This section includes the types of evidence/samples of student work that will be collected. There are multiple outcome measures, including direct and indirect evidence. Programs have discretion to incorporate a variety of outcome measures into their plans



provided at least one (1) direct measure is used per student learning outcome. Additionally, the plan should include a description of the standard used for reviewing the work and determining whether program targets are met. Ideally, the assessment will be scored using a rubric or set of criteria that aligns directly to the program or institutional learning outcome.

**Who** will be responsible for collecting student work, analyzing the data, and reporting the results.

### **Closing the Loop**

Please describe how you plan to close the loop. When will the data be collected (Midterms/Finals)? When will the data be analyzed? What does your analysis process look like? This data will be used to improve on academic work and structure a plan for continuous improvement. After reviewing the assessment activity findings (evidence), determine if students are meeting the expectations. Validate that expectations are being met or consider ways to improve. This is often referred to as “closing the loop” and is an essential component of the annual program assessment report due on **September 1st** of each year. More information about developing learning goals and sample assessment plans are available on the Assessment website.

Click [here](#) to view the Assessment Plan Template  
Click [here](#) to view the a sample completed Assessment Plan

## Eight Steps of Student Learning Assessment

NSU identifies the following steps in the student learning outcomes assessment process:

1. Articulate program mission and vision
2. Establish program learning outcomes
3. Develop outcome measures
4. Align program PLOs, outcome measures, and curriculum
5. Engage learners
6. Gather and analyze data
7. Share and Report Data
8. Make evidence-based decisions (close the loop)



The Handbook includes ideas and suggestions intended to provide useful information for staff, faculty, and department chairs. Since each program differs in terms of size, approach, and outlook, it is important to ensure that the assessment approach matches the needs of the program. The Executive Director of Planning and Assessment, and the Student Learning Assessment Committee members are available to discuss ways to help each program build a learning outcomes assessment process that meets its needs.

### 1. Articulating your program's mission and vision statement

It is important to consider your program's priorities, strengths, and areas for improvement when articulating or reflecting on your program's mission and vision. A program's implicit or explicit priorities guide the decisions that program faculty and staff make about curriculum, instruction, and assessment, and the policies that impact them. A program's strengths make it possible to achieve its mission and vision. Areas for improvement are the "pain points" that may interfere with achieving mission and vision.

Program priorities may be guided by the expectations of professional organizations, accrediting bodies, the NSU and College strategic plans, and the job market. Strengths might include things such as faculty expertise, existing student support resources, facilities, and curriculum. Areas for improvement might include items such as lack of faculty or staff, gaps in expertise, facilities limitations, or policy constraints. These examples are not exhaustive and should be considered in the context of your program. Once the mission and vision statements are clearly articulated, review them annually to ensure they continue to represent your program's strengths and priorities.

Please click [here](#) to view the 'How-To' Write A Program Mission Statement.

## 2. Establish Program Learning Outcomes

Program learning outcomes reflect the core knowledge and components of the program. Most programs have previously developed PLOs. If so, this step of

**PLO = Program Learning Outcome**

the process allows for re-examination and potential revision. The development of PLOs should capitalize on the depth of knowledge of the program faculty and staff and thereby help shape the nature and direction of the program. This section describes characteristics of strong PLOs, provides suggestions on how to develop PLOs, and discusses a process by which programs can scrutinize PLOs to ensure their strength.

PLOs should be comprehensive but manageable (there should typically be between 5 and 7, depending on the length and level of the program). PLOs should be developed by faculty and staff in collaboration. The PLOs should meet all of the SPAM criteria (specific, purposeful, attainable, and measurable - see below for more information).

**Make sure, for purposes of student learning assessment, that you develop and assess program learning outcomes, as opposed to program goals.**

**Goals** are an important part of planning in programs and courses, but they differ from learning outcomes. Goals tend to be broader and more intangible, and are typically phrased in terms of what the program would like to accomplish through its curriculum. They differ from PLOs, as PLOs focus on what the student will do and learn from the program once complete, and they are written from the student's perspective. Goals tell us what the program will do for the student. For example, a program goal may be stated as follows: "Prepare students for graduate-level studies in business administration." Another program goal example is, "Ensure student competence in critical thinking and analysis." Goals are written in terms of what the program would like to achieve for the student.

**Outcomes** are specific, purposeful, attainable, and measurable. There may be multiple outcomes supporting a single program goal. Well written learning outcomes: (1) begin with a measurable or observable verb, (2) focus on a single learning outcome (include only one verb), and (3) are stated in terms of the student's terminal performance as a learning product. Provided in [Appendix 1A](#) are learning taxonomies for cognitive, affective, and psychomotor domains that contain helpful lists of verbs.

### Effective Program Learning Outcomes

PLOs are statements that specify what students will know or be able to do as a result of completing their program. **Effective PLOs are expressed as expected knowledge, skills, or abilities that students will possess upon successful completion of a program.** They provide guidance for faculty and program staff regarding content, instruction, and evaluation, and serve as the basis for ensuring program effectiveness.

For example, a student learning outcome may be stated as follows, “Construct an educational philosophy statement which guides instructional decisions.” Other student learning outcome examples include “Explain the difference between an independent and a dependent variable” and “Identify the basic principles of electricity.” Student learning outcomes are written in terms of what the student is expected to learn and how the student must demonstrate competency in that expectation.

### **Strategies for Developing Effective Program Learning Outcomes**

Drafting student learning outcomes is an iterative process that may require several versions to capture the true essence of core ideas. Prior to developing or revising program PLOs, the program’s leader and/or program staff may wish to meet with assessment staff. The Executive Director of Planning and Assessment and College Student Learning Assessment Coordinator are available to assist.

Questions to Consider When Drafting PLOs:

- Are there specific skills or abilities that students need? What are they?
- How does interacting with the program attempt to shape students’ attitudes or views?
- How do these skills, abilities, or habits of mind relate to the university’s mission and core competencies?
- How should the expected student learning competencies build upon each other and progress throughout the program?

**S.P.A.M. Criteria:** PLOs should be concise, specific and measurable, and written in quantifiable terms. Outcomes should be:

- **Specific.** Your student learning outcome should begin with a verb and target *one* key competency per outcome.
- **Purposeful.** Your student learning outcome should be relevant to your students and your program. It should directly impact your field and those within it. The outcome should be stated in terms of a student's terminal performance as a learning product.
- **Attainable.** Your student learning outcome should reflect that the student will be able to complete the outcome within a reasonable time that can be measured.
- **Measurable.** Your student learning outcome has to be measured via a direct or indirect measurement.

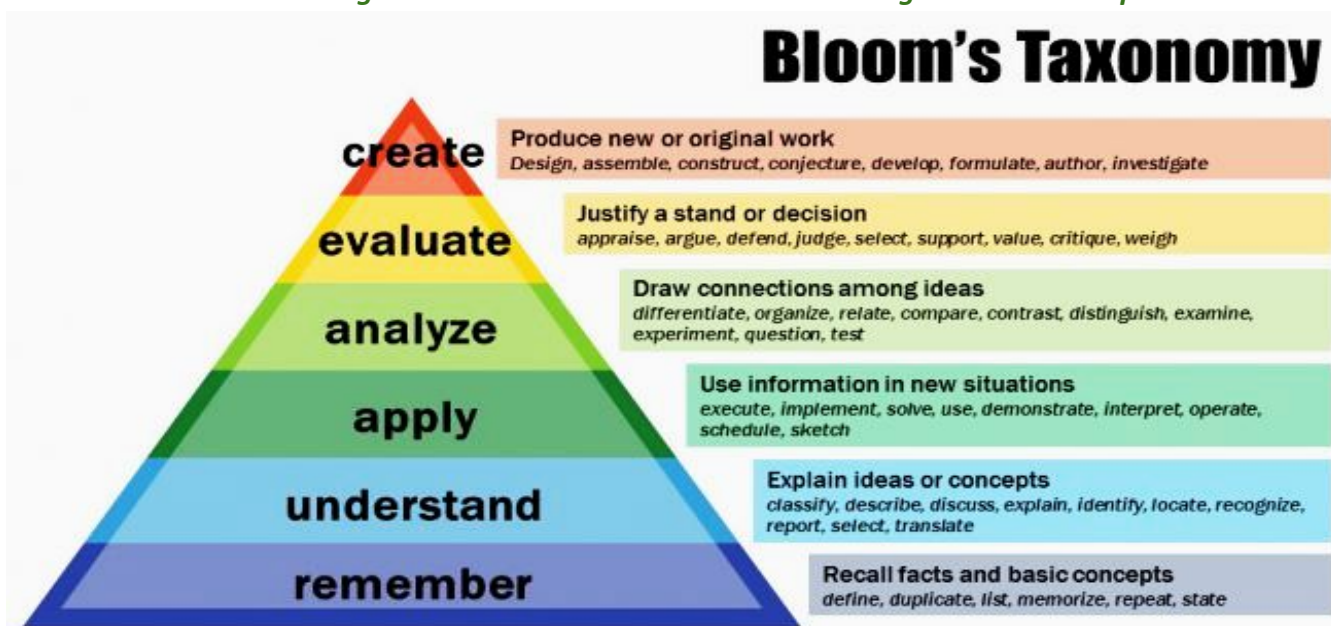
### **Bloom’s Taxonomy**

In developing PLOs, it is helpful to consider the level of learning expected of students. Every program is different and outcomes vary based on the type of program, so it is important that learning outcomes accurately reflect the level of expectation.

PLOs are often organized around Bloom’s taxonomy (Bloom, 1956), which is a classification of different ways of learning, from lower to higher order levels. We most often write learning outcomes in the cognitive (knowledge) domain. Bloom also developed taxonomies around

psychomotor (physical skills) and affective (attitudes) domains, which may be of use in some programs. [Appendix 1A](#) contains charts that outline the levels of learning using a revised Bloom’s Taxonomy, and provide examples of verbs that can help program staff articulate and frame outcomes at the appropriate level of sophistication for their program.

*The lowest cognitive level is at the bottom while the highest is at the top.*



### Selecting the Right Verb

Given that PLOs focus on observable and measurable actions performed by students, the selection of an action verb for each outcome is crucial. Determining the best verb to use in a learning outcome can be challenging because of its need to accurately reflect the knowledge, skills, and abilities being demonstrated.

Certain verbs are unclear and subject to different interpretations in terms of what action they are specifying. Verbs or verb phrases such as “know,” “become aware of,” “appreciate,” “learn,” “understand,” and “become familiar with” should be avoided; they frequently denote behavior that is not easily observed or measured.

The verb conveys “how” the student is expected to demonstrate competency. For example, if a student is expected to “Discuss the difference between an independent and dependent variable” the assessment activity should align to the cognitive expectation, such as an essay question on an exam, or a discussion board assignment.

### PLO EXAMPLES:

#### Strengthening PLOs

Developers of PLOs can strengthen them by re-examining the original characteristics used for strong outcomes. Ask the following questions, based on the SPAM criteria, to discover weaknesses in your written outcomes.

1. Is the outcome specific?
2. Is the outcome purposeful?
3. Is the outcome attainable?
4. Is the outcome measurable?

## Examples to Guide a Well developed Learning Outcome

### Academic Example:

The following illustration demonstrates how to use the SPAM criteria to evaluate and strengthen an academic program's student learning outcome.

**Developing PLO:** Upon successful completion of this program, students will be exposed to diagramming the scientific method and applying it effectively.

We evaluate this learning outcome using the SPAM criteria:

1. Is the outcome *specific*? Does the outcome target one key element of what you will be measuring in student learning and begin with an appropriate taxonomy verb? **NO** - the outcome targets multiple elements in one outcome. The outcome does not begin with a taxonomy verb stating the expected cognitive competency. The outcome states multiple verbs in the same outcome.
2. Is the outcome *purposeful*? Does this outcome directly impact the field and those within it? Is the outcome written in terms of student performance? **NO** - This is a biology degree and the scientific method is relevant to this field, but the outcome is not stated in terms of student performance. It is written in terms of program performance.
3. Is the outcome *attainable*? Does the outcome reflect that the student will be able to complete the expected competency within a reasonable time? **YES** - this outcome can be measured within a particular course of study.
4. Is the outcome *measurable*? Can the outcome be measured via a direct or indirect measurement? **YES** - the outcome is capable of being measured by a direct measure, ie; a test or project.

The outcome can be revised to meet the SPAM requirements as follows:

**Well-developed PLO:** Use appropriate experimental procedures to solve problems.

### Co-Curricular Example:

The following illustration demonstrates how to use the SPAM criteria to evaluate and strengthen a co-curricular program student learning outcome.

The original learning outcome from a Student Affairs Office Leadership Certificate reads:

**Developing Co-curricular PLO:** Students engaged in the leadership certificate will be exposed to leadership skills through co-curricular involvement.

We evaluate this learning outcome using the SPAM criteria:

1. Is the outcome *specific*? Does the outcome target one key element of what you will be measuring in student learning and begin with an appropriate taxonomy verb? **NO** - the outcome targets only one element in the outcome, but does not begin with a verb stating the expected cognitive competency.
2. Is the outcome *purposeful*? Does this outcome directly impact the field and those within it? Is the outcome written in terms of student performance? **NO** - The outcome is relevant to student engagement, but the outcome is not stated in terms of student performance. It is written in terms of program performance.
3. Is the outcome *attainable*? Does the outcome reflect that the student will be able to complete the expected competency within a reasonable time? **YES** - this outcome can be measured within the duration of the leadership certificate.
4. Is the outcome *measurable*? Can the outcome be measured via a direct or indirect measurement? **YES** - the outcome is capable of being measured by a direct measure, ie; a project.

**Well-developed Co-curricular PLO:** Articulate the skills developed through participation in co-curricular activities.

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### **Aligning Program Learning Outcomes to the Degrees of Excellence (DOEs).**

Alignment is the connection between learning objectives, learning activities and assessment. It conveys the idea that critical program/course components work together to ensure that learners achieve the desired learning outcomes.

Alignment means that each PLO is addressed by at least one assessment, and the assessment type matches the level of difficulty indicated by the verb in the PLO. Ideally, each outcome is measured by more than one assessment throughout the student's tenure in the program in order to determine student progress over time.

Student learning is directly assessed at various levels. Academic and co-curricular programs should consider the fit between the program outcomes and the DOE's. This fit is documented in the program assessment plan.

### 3. Develop Outcome Measures (Assessments)

After developing learning outcomes, the next step in the assessment cycle is to design instructional materials that allow students to achieve the expected level of competency and select outcome measures (assessments). This section will discuss designing and selecting outcome measures. For more information on designing instructional materials, please visit the NSU's Center for Teaching & Learning website.

Click [here](#) to visit NSU's Center for Teaching & Learning website

While student learning outcomes describe the knowledge, skills, and abilities that students should possess after interaction with an academic or co-curricular program, outcome measures are the specific tools and methods that generate data and information about student performance relative to learning outcomes.

#### Direct v. Indirect Outcome Measures

There are two types of outcome measures: direct measures and indirect measures. Each serves an important function in assessment, and when used together they provide a richer perspective on student learning by providing direct evidence and context to understand students' performance.

- **Direct measures** are methods for assessing actual student work to produce evidence of student performance relative to the learning outcomes. Examples include performance assessments, capstone projects, senior theses, exhibits or performances, and standardized exams.
- **Indirect measures** are methods for assessing secondary information on student learning that do not rely on actual student work. Examples include satisfaction surveys, exit interviews, and focus groups.

Each type of outcome measure serves a particular purpose. Direct measures assess the extent to which students' work meets the learning outcome performance criteria. Indirect measures provide additional evidence, information, and often, the student perspective. Together they provide a richer perspective on student learning by providing evidence and context to understand student performance. **It is suggested that each PLO includes at least two (2) measures. Every PLO must include at least one (1) direct outcome measure.**



*Examples of Indirect and Direct Measures*

Indirect	Direct
<p><i>Self-reported achievement of PLOs, or observation of something other than a student's work product.</i></p> <p><u>Examples include:</u></p> <ul style="list-style-type: none"> <li>● Surveys</li> <li>● Group Discussions</li> <li>● Focus groups</li> <li>● Exit Interviews</li> <li>● Reflection essays</li> <li>● Participation</li> <li>● Usage data</li> </ul>	<p><i>Direct evidence or observation of learning outcome performance.</i></p> <p><u>Examples include:</u></p> <ul style="list-style-type: none"> <li>● Artifacts (student work product)</li> <li>● Capstone Projects</li> <li>● Student portfolio evaluations</li> <li>● Student Performances</li> <li>● Simulations</li> <li>● Supervisor Evaluations</li> <li>● Thesis Evaluations</li> <li>● Pre-test/post-test evaluations</li> </ul>

*Assessments may be direct or indirect, depending upon how they are used and their purposes*

Method	Indirect	Direct
Minute paper after a workshop on diversity	Perceptions of moral dilemmas regarding diversity	Factual question on the definition of diversity
Survey after a training	Teacher and learner satisfaction	Factual question on knowledge of workshop content
Telephone calls to a department's "help desk"	Students' satisfaction with department services	Qualitative analysis of question sophistication regarding a department's major area of outreach and emphasis

**Outcome Measures Should Meet Two Criteria**

Regardless of the type of measure used, strong measures share two basic qualities:

1. Provide sufficient data and information to measure the learning outcome; and
2. Are not overly burdensome for departments to collect.

## Selecting Direct Measures

**Course-embedded direct assessments** are measures which use student work in specific courses to assess student learning. Students are already motivated to do their best on these assessments because they are conventionally graded on them. Course-embedded outcome measures are often selected because they take place in the classroom, take advantage of student motivation to do well, and directly assess what is taught in the classroom.

- **Examinations:** In some cases, the outcomes measured by the examinations will be identical to the program's student learning outcomes and the exam questions will assess both course and program outcomes.
- **Analysis of course papers:** Because students create these papers for a grade, they are motivated to do their best and these papers may reflect the students' best work. Faculty and their committees can read these same papers to assess the attainment of PLOs.
- **Analysis of course projects, presentations, and artifacts:** Products other than papers can also be assessed for attainment of program learning outcomes.
- **Student performance:** In some areas, such as teaching, counseling, or art, analysis of student classroom teaching, mock counseling sessions, or creative performances can provide useful measures of student learning.

**Cross course measures** are direct measures of student work across the program. Cross course measures examine students' work that incorporates multiple dimensions of knowledge, skills and abilities developed throughout the entire program. The most common types of cross course measures are capstone course papers and projects, and student portfolios.

- **Capstone courses:** Capstone courses provide an ideal opportunity to measure student learning, because this is where students are most likely to exhibit their cumulative understanding and competence in the discipline.
- **Student portfolios:** Compilations of students' work in their major can provide a rich and well-rounded view of student learning. The program usually specifies the work that goes into the portfolio or allows students to select examples based on established guidelines. Portfolios which consist of a range of student work can be used as the measure for more than one learning outcome.
- **Standardized and certification exams:** In some disciplines, national standardized or certification exams exist which can be used as measures if they reflect the program's learning outcomes. Such an examination usually cuts across the content of specific courses and reflects the externally valued knowledge, skills and abilities of a program.

- **Internship supervisor evaluations:** If the program has a number of students who are doing relevant internships or other work-based learning, standard evaluations by supervisors using a rubric designed to measure a particular learning outcome across the duration of the internship may provide data on attainment of learning outcomes.

### Selecting Indirect Measures

As when selecting direct measures, there are many issues to consider when selecting indirect measures of learning. Programs should be creative in determining the most useful way to measure student performance, but at the same time ensure that the methods allow for meaning from interpretation and results.

- **Employer Survey:** If the program is preparing students for a particular job or career field, employers' opinions of students' on-the-job performance can be an effective outcome measure. However, it is important to survey those who have first-hand knowledge of student work.
- **Internship Supervisor Survey:** Internship supervisors may provide general feedback to programs regarding the overall performance of a group of students during the internship, providing indirect evidence of attainment of learning outcomes. This should not be confused with internship supervisors' evaluation of student performance on specific learning outcomes (a direct measure).
- **Focus Groups:** Focus Groups consist of in-depth, qualitative interviews with a small number of carefully selected people who are thought to represent the population of interest (students in the program).
- **Exit Interviews:** Graduating students are interviewed individually to obtain feedback on the program.
- **Area Expert or Advisory Committee Comments:** Comments made by area experts can be useful in gaining an overall understanding of how students will be judged in a given field.

### Evaluating Selected Outcome Measures

It is possible to evaluate outcome measures by asking 2 questions:

1. Does the measure provide sufficient data and evidence to analyze the student learning expected in the outcome?
2. Can the measure reasonably be administered and the evidence analyzed?

If the answer is "yes" to both of the questions, it is likely that a strong set of measures has been developed.

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### Examples of Evaluating Outcome Measures

**Academic Example:**

**PLO:** Use appropriate experimental procedures to solve problems.

**Developing Outcome Measures:** 1) An exam where the student defines the experimental procedures included in the course and identifies the appropriate procedure to use in various situations. 2) A project where a student applies an experimental procedure to solve a problem set.

We evaluate these outcome measures by asking the following questions:

- Does the measure provide sufficient data and information to analyze the learning outcome? **Yes.** There are 2 direct measures that evaluate student work products and align specifically to the outcome. Program faculty can utilize the results to analyze student learning.
- Can the measure reasonably be administered and the evidence analyzed? **Yes,** the amount of work required is reasonable.

These outcome measures provide a strong set of measures to evaluate student learning pursuant to this outcome.

**Co-Curricular Example:**

The following example shows how to evaluate and improve selected outcome measures. This example builds on the learning outcome developed in section one.

**PLO:** Articulate the skills developed through co-curricular involvement.

**Outcome Measure:** A department decides to use a 2-part question from a student reflection survey:

For each of the following skills, please indicate how well you believe your participation in co-curricular activities prepared you to:

1. Determine the most appropriate response to a situation.
2. Work together with others to accomplish a task.

*Students respond to these questions by indicating their choice on a five-point scale ranging from "Strongly Disagree" to "Strongly Agree."*

We will evaluate this outcome measure by asking the following questions:

- Does the measure provide sufficient data and information to analyze the learning outcome?" **No,** because this evidence is the student's opinion. This is an example of indirect evidence. While indirect measures are valid and appropriate for co-curricular assessment reporting, this demonstrates the importance of utilizing multiple outcome

measures. It is important to have at least two measures of student learning. Taken by itself, the evidence would not provide enough information to analyze student learning according to the language of the outcome. The outcome requires students to articulate the skills developed through co-curricular participation. The survey may still be valuable to evaluating student learning overall, but it is not sufficient to measure the outcome as written.

- Can the measure reasonably be administered and the evidence analyzed? **Yes**, the amount of work required is reasonable.

Suggestion for improvement: add a direct measure. For example, ask students to compose an essay articulating the skills developed through participation in co-curricular activities. Then, ask students to evaluate the 2 questions using the five-point scale from strongly disagree to strongly agree for those skills articulated in the direct measure.

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### Establishing a Desired Performance Target

When interpreting assessment results, it is useful to set a performance target that specifies the acceptable level of student response. For each learning outcome the program should ask, “What is an acceptable performance level for this learning outcome?” The performance level may be any indicator of the quality of student learning. For example, if a 100 point scale is used on a test measuring an outcome, the desired performance criterion may be 80/100. If a 4-point scale is used on a rubric, the desired performance criterion may be a 3 out of 4. If a qualitative scale is used on a rubric (exceeds expectations, meets expectations, does not meet expectations), meets expectations may be the desired performance criterion.

### Establishing Expected Number of Students Meeting Desired Performance Target

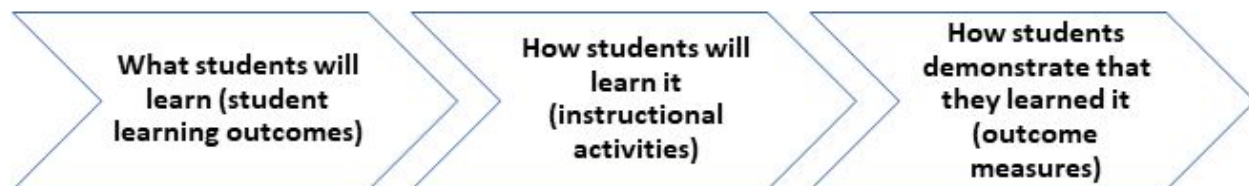
By setting expected results for the percentage of students meeting or exceeding the desired performance target before data collection begins, the program can gauge its effectiveness in helping students meet the learning outcomes. For example, “70% of the enrolled students will meet or exceed the desired performance criteria.” Previous outcome performance data can be used to establish this expectation.

Useful assessment links can be found [here](#).



#### 4. Align PLOs, Outcome Measures, and Curriculum - Utilizing an effective Mapping Process.

Alignment, in both academic and co-curricular assessment planning, is the connection between learning objectives, learning activities and outcome measures.



While this section is treated independently for this handbook, in practice, the process overlaps with the development of PLOs and outcome measures. A best practice in assuring alignment between what the students are expected to learn, how they will learn it, and how they will demonstrate that knowledge is through mapping. There are different mapping tools to accomplish alignment.

#### Program Curriculum Map

A program curriculum map visualizes the relationship between the program learning outcomes and the required program curriculum. It is a tool that can assist in curriculum design, diagnose gaps in student learning, and improve programs. A curriculum map can also inform faculty and staff of where program outcomes are embedded, providing a richer understanding of the role and importance of specific courses in the program. Curriculum maps are easily updated (and should be periodically) and can be added to the departmental website and/or complement updated curriculum sheets. It is vital to understand where students are introduced to concepts defined in a program's PLOs. Mapping the student learning outcomes to program courses is the first step in understanding where students are introduced to the material they need to master. See the *Sample Curriculum Map* and the example below as guidelines to develop a curriculum map.

#### Examining Concept Reinforcement

Curriculum maps identify the level of competency expected of the outcome in that course. For example, an outcome may be introduced in course A, reinforced in course B, and mastered in course C. Curriculum mapping assists programs in reviewing course assignments and planned experiences to ensure that they are sufficient to help students master the expected level of student learning and provides evidence to modify the curriculum, learning materials, or assessments where needed. A program may also discover that a new course or experience needs to be created to sufficiently address a learning outcome. The following chart explains the relationship between concept level and bloom's taxonomy.

When PLO is:	Students:	Faculty/Program Staff Facilitate:
<b>(I) Introduced</b>	<b>Acquire</b> basic disciplinary knowledge and skills	Emerging ability to <b>remember</b> and/or <b>understand</b>
<b>(R) Reinforced (practiced)</b>	<b>Reinforce</b> integrating skills with increasing complexity	Developing ability to <b>apply</b> and/or <b>analyze</b>
<b>(M) Mastered (demonstrated)</b>	<b>Apply</b> knowledge and skills to address complex disciplinary questions/problems	Advanced ability to <b>evaluate</b> and/or <b>create</b>

*Sample Academic Program Curriculum Map (ie; B.S. Biology)*

PLOs	Course 14XX	Course 23XX	Course 33XX	Course 42XX	Course 43XX	Course 44XX
PLO1	I	R	R	M		
PLO2	I		R	R	M	
PLO3	I	R			R	M

*Sample Co-Curricular Curriculum Map (ie; Leadership Certificate)*

PLOs	Learning Activity 1	Learning Activity 2	Learning Activity 3	Learning Activity 4	Learning Activity 5	Learning Activity 6
PLO1	I	R	R	M		
PLO2	I			R	M	
PLO3	I	R			R	M
PLO4	I		R	R	R	M

**While it is acceptable to place an "X" in the boxes on the template to show where a learning outcome is covered, we highly encourage you to consider using a key that indicates the level of learning being asked of the student.**

For more information, here is a helpful web tutorial series on creating and using curriculum maps for assessment of student learning. [\[insert hyperlink to NSU Crash Course\]](#)

**Academic Course or Co-curricular Learning Activity Mapping**

A course or learning activity map drills down from the program curriculum map to align the course outcomes to the program outcomes, instructional activities, and outcome measures. This process is beneficial to developing and evaluating outcome measures. Additionally, this process assists programs with multiple course sections to ensure students receive the same learning opportunity regardless of the instructor. Academic and co-curricular programs should prepare course or learning activity maps for all required courses (academic programs) and learning activities (co-curricular programs).



<i>Course Learning Outcome (CLO)</i>	<i>Alignment to Program Learning Outcome (PLO)</i>	<i>Instructional Activities</i>	<i>Outcome Measures</i>
CLO #1: Calculate descriptive measures for centrality and dispersion.	PLO # 3: Use appropriate experimental procedures to solve problems.	<ol style="list-style-type: none"> <li>1. Chapter 3 Descriptive statistics: mean, median, mode, range, variance, standard deviation.</li> <li>2. In-Class problem sets.</li> <li>3. Homework problems sets.</li> <li>4. Practice Quiz 1 &amp; 2</li> </ol>	<ol style="list-style-type: none"> <li>1. Graded Quiz 1</li> <li>2. Graded Quiz 2</li> <li>3. Midterm Exam problems 3-5, 7, 10.</li> </ol>
Continue this pattern with all course learning outcomes			

*Sample Co-curricular Learning Activity Curriculum Map: Identifying Leadership Style Module in the Leadership Certificate*

Learning Activity SLO	Alignment to Program Learning Outcome (PLO)	Instructional Activities	Outcome Measures
SLO #1: Articulate student's own strengths as they relate to leadership	PLO # 1: Articulate the skills developed through co-curricular involvement.	<ol style="list-style-type: none"> <li>1. Provost presentation on leadership styles.</li> <li>2. V.P. Student Affairs presentation on assessing leadership strengths.</li> <li>3. Interview campus leader of choice on leadership skills.</li> </ol>	<ol style="list-style-type: none"> <li>1. Narrated PowerPoint presentation on identifying one's leadership strengths – Direct measure</li> <li>2. Leadership style assessment – Indirect measure</li> </ol>
Continue this pattern with all activity learning outcomes			

### **Outcome Measures Map**

The Outcome Measures map is a useful tool to analyze and aggregate course and program curriculum maps. This tool provides the opportunity for program faculty or staff to engage in discussion on which of the outcome measures will be used for the program's student learning assessment plan. As the sample program and course curriculum maps demonstrate, a program outcome is assessed at multiple points. How will these multiple assessment points be prioritized for your assessment strategy? How will the assessments be used together to provide the most comprehensive information about student learning? The following outcome measures map will assist in making this decision. For example, the Biology program in our sample may find it beneficial to assess PLO "Use appropriate experimental procedures to solve problems" at the introduced, reinforced, and mastered level in order to track progress over time. The Outcome Measures Map provides an organizational tool for programs.

Program Learning Outcome	Outcome Measures
PLO # 1: Use appropriate experimental procedures to solve problems	1. Introduced: Final Exam, Course 1xx3-questions 10-15, 22, 30  2. Reinforced: Final Lab Report, Course 3xx3  3. ETS Field Subject Test - Analytical Skills questions, administered in Course 4xx3.
Continue this pattern to identify the summative outcome measures for the program assessment plan.	

### Assessment Map - Tying it all together.

An assessment map charts the alignment of the summative assessments in a program's assessment plan. All NSU academic programs must have an assessment plan on file. The assessment map documents the assessment plan. The NSU assessment map template demonstrates the alignment (relationship) between the program outcome, the NSU institutional outcome, the assessment methods measuring student learning, and the performance target. A complete example is in the appendix.

Program Outcome (PLO)	NSU Outcome (DOE)	Course Number & Title	PLO Level: I, R, M	Description of Outcome Measure (assessment activity)	Direct or Indirect Measure	Performance Target

## 5. Engage Learners

The next step in the assessment cycle is to engage learners using well-planned instructional activities, and instructional strategies targeting the diverse learners in your classrooms. Specific professional development for instructional design, instructional strategies, and pedagogy is offered by the Center for Teaching and Learning. **For assistance in exploring innovative uses**

for academic technology or advances in curriculum design, see the [Center for Teaching and Learning](#).

## 6. Gather and Analyze Data

### Data collection

The next step in the assessment cycle is data collection. This includes collecting the students' work, rating work, storing data, and then eventually analyzing the collected data. The collection process may seem like a daunting task, but with appropriate planning, it can move smoothly and provide quality information about the program's learning outcomes.

The data collection process consists of three basic steps:

1. **Gathering** necessary student work and other information
2. **Evaluating** the results
3. **Storing** the data in Chalk and Wire

The **Gathering**, **Evaluating**, and **Storing** process is used for both direct and indirect measures. However, some of the specific steps will vary. The key to simplifying the data collection process is planning. The following chart presents questions to consider in planning data collection.

<b>Questions to Ask in Planning Data Collection</b>	
Direct Measures	Indirect Measures
<ul style="list-style-type: none"> <li>• Where is the student work coming from?</li> <li>• Does the student work represent all major populations in the program (e.g., distance education students)?</li> <li>• How will the student work be organized and stored for evaluation?</li> <li>• When will it be evaluated?</li> <li>• Who will be responsible for evaluating it?</li> <li>• How will the performance data be stored? How will it be secured?</li> <li>• How will examples of student work be stored? Paper? Electronically?</li> <li>• Are there FERPA issues to consider?</li> </ul>	<ul style="list-style-type: none"> <li>• Who will conduct the research for the measure?</li> <li>• When will research be done? In a class?</li> <li>• How will the results be tabulated or categorized?</li> <li>• If you are using institutional data, will special data analysis need to be done?</li> </ul>

### **Gathering Data**

The process of gathering materials for direct measures varies greatly depending on the measures used. For course-embedded measures or capstone experiences, it is necessary to coordinate with faculty teaching the course to ensure students' work is collected and forwarded for assessment. It is important that the data collected reflects all modes of program delivery--for example, departments with off-site programs or distance education programs should ensure that the data collected reflects the students in their program.

When using indirect measures, the data collection is done by conducting the necessary research (survey, focus group, or other measures). Indirect measures based on secondary analysis of material (e.g. course syllabi) need these materials to be compiled. Programs need to be responsible for setting a schedule that outlines the materials needed to simplify follow up and ensure all student work is collected.

### **Evaluating Student Performance**

The evaluation phase for direct measures includes the examination of student's work by faculty/program staff to determine the level to which it meets the learning outcome. This section discusses evaluation by means other than an objective quiz or test. Evaluation, and supporting tools can be as simple as a checklist of criteria or expectations, or as complex as a multi-level, multi-dimensional rubric. Outcome measures (assessments) are created to evaluate specific aspects of student work, rubrics are used as guidelines in the process. We will discuss the elements of an effective rubric.

Effective rubrics can be developed in many different ways to assist in the evaluation process. They can describe qualitative and quantitative differences, and are often used to assess assignments, projects, portfolios, term papers, internships, essay tests, and performances. They allow multiple raters to assess student work effectively by increasing the consistency of ratings and decreasing the time required for assessment.

### **Using a Rubric to Evaluate Student Work**

- Review the rubric with all raters to ensure it is consistently understood.
- Use the descriptors in each performance level to guide ratings.
- Assign the rating that best represents the student's work.

The key to achieving consistency between raters is conducting a "familiarizing" session to allow faculty raters to reach consensus on the levels of student work at each level of the performance criterion.

### **Steps In "Familiarizing" A Rubric**

- Explain to the raters how to use the rubric.
- Provide a few samples of student work.
- Discuss each sample and determine how raters determine scores.

- Reach a general consensus on each level of the performance criterion.

For indirect measures, the evaluation phase consists of the compiling of the results into a form that are meaningful to those doing the assessment. For survey data, this will generally include entering the data into a data set for analysis and generating the descriptive statistics. For qualitative work such as focus groups, this part of the process may be the extraction of any themes or ideas. [Click here to view different types of rubrics.](#)

### Storing Assessment Data

Northeastern State University utilizes an online database called Chalk and Wire to store and assess the data collected from student work for assessment. Faculty and staff can contact the Center for Teaching and Learning for initial or follow-up training on how to use Chalk and Wire.

For tracking direct and indirect measures, assessment forms and rubrics can be created through Chalk and Wire, or assessment data can be tabulated on an excel sheet and imported into chalk and wire. Utilizing this database to store student level assessment data allows the institution and programs to view student progression over time. An example view from Chalk and Wire, using mock students, is presented below.

Student	Student #	Assessor	Table of Contents	Section	Assessment Instrument	Submitted	Assessed	Score	Grade (%)
Dorrington, Mike		Snyder, Dani	Elementary Education	Reflection and Self-Assessment	Unit Plan Self-Assessment	2014-07-03 15:06	2014-07-03 15:31	3.7	
Dorrington,		Snyder, Dani	Visual Arts	Visual Arts	Visual Arts Final	2014-07-07 16:30	2014-07-10	4.0	

Because this database will have individual student information, it is very important to ensure it remains secure and that only faculty and/or staff involved in the assessment activity have access to the contents. Many times, however, indirect measures may not be trackable by specific students. For these types of measures a descriptive report of the results will be useful as the program reviews the direct measures.

### Student Awareness of Assessment Activity and Privacy Issues

Students should be aware that their work may be used in the assessment purposes. One way to do this is through a statement on a course syllabus. By incorporating a statement on select or all program course syllabi, the department informs students about its assessment work.

As noted in the section about keeping data work secure, student work is protected by The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99). To comply with FERPA regulations, student work needs to be maintained in a secure system with access limited to those involved in assessment or should have all personally identifiable information removed.

### Strategies for Collecting Data

By preparing using the “Questions to Ask in Planning Data Collection” before collecting data, programs can avoid many potential roadblocks in the data collection process. The following example lists three common roadblocks that can occur during this process and illustrates an effective plan for data collection.

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## Examples for Collecting Assessment Data from *Direct* Measures Effectively

### Academic Example:

There are three common roadblocks that can stifle the collection of assessment data.

1. Data are not collected for stated outcome measures
2. Copies of student data are collected, but cannot be found at the time of evaluation
3. There is no clear system for the evaluation of student data, resulting in no data for analysis

The following example illustrates how to avoid these roadblocks and plan for effective data collection. By answering the questions in ***Questions to Ask in Planning Data Collection*** before data is to be collected an effective plan can be developed. The example uses the learning outcome and outcome measures found in previous sections. The learning outcome chosen by the program is:

- **Upon successful completion of this program, students will be able to apply ethical reasoning in discussing an ethical issue.**

It will be measured by a direct measure:

**Direct Measure:** A paper taken from student portfolios where the student discusses an ethical issue.

The first common roadblock, *data are not collected*, can be avoided by identifying where the student work is coming from. For example, the program chair decides that the instructor of the capstone course will collect copies of student work. This course is offered in both the fall and

spring semesters and accordingly, student papers will be collected by the instructor during both semesters. The instructor will create a double-blind portfolio submission link to the course blackboard to prevent bias during the evaluation. If assessment data is collected and tracked at the student level over time, the department chair can then match assessment results to the student after the work is evaluated.

The second roadblock, *copies of student work cannot be found for evaluation*, is prevented through intentional assessment planning by the program faculty. The best practice at NSU is to utilize Chalk and Wire to store the collected student data. Assessors can access the necessary rubrics and work products for easy assessment in the system, and the program chair can review assessment data in Chalk and Wire.

The third common roadblock, *no clear system for evaluating student work*, is avoided by developing a schedule for evaluation of student work. The faculty agrees to serve as evaluators on a rotating schedule to divide the work equally. The instructor of the capstone course will not evaluate the capstone students' papers for assessment purposes to avoid instructor bias. Each paper will be reviewed by the assigned faculty members using the rubric developed for this outcome measure. If the reviewers' ratings do not agree, an additional faculty member will review the paper and assign a final rating.

Ratings of student work will be stored in Chalk and Wire, accessible to the program chair for data collection and review.

#### **Co-curricular Example:**

There are three common roadblocks that can stifle the collection of assessment data.

1. Data are not collected for stated outcome measures
2. Copies of student work are collected, but cannot be found at the time of evaluation
3. There is no clear system for the evaluation of student work resulting in no data for analysis

The following example illustrates how to avoid these roadblocks and plan for effective data collection. By answering the questions in ***Questions to Ask in Planning Data Collection*** before data is to be collected, an effective plan can be developed. The example uses the learning outcome and outcome measures found in previous sections. The learning outcome chosen by the program is:

- Students engaged in student organizations will be able to articulate the skills they have developed through their co-curricular involvement.

It will be measured by a direct measure:

**Direct Measure:** A survey taken by students at the end of their co-curricular participation.



The first common roadblock, *data are not collected*, can be avoided by identifying where the student work is coming from. For example, the program director decides that the leaders of student organizations will collect copies of student work from group meetings. The leader will remove the students' names from student work and affix unique numeric assessment codes to the surveys.

The second roadblock, *copies of student work cannot be found for evaluation*, is discussed by the program staff and a system for organizing and evaluating the students work is developed. The organization leader will upload the students' essays to Chalk and Wire, where the program director will have access to ensure the data are available for evaluation.

The third common roadblock, *no clear system for evaluating student work*, is avoided by developing a schedule for evaluation of student work. The program staff agrees to serve as evaluators for a sample of student essays on a rotating schedule to divide the work equally. Each survey will be reviewed by program staff members using the rubric developed on Chalk and Wire for this outcome measure. If the reviewers' ratings do not agree, an additional program staff member will review the survey and assign a final rating.

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### Example for Collecting Assessment Data from *Indirect* Measures Effectively

There are three common roadblocks that can stifle the collection of assessment data.

1. Data are not collected for stated outcome measures
2. Copies of student data are collected, but cannot be found at the time of evaluation
3. There is no clear system for the evaluation of student data, resulting in no data for analysis

The following example illustrates how to avoid these roadblocks and plan for effective data collection. By answering the questions in ***Questions to Ask in Planning Data Collection*** before data is to be collected an effective plan can be developed. The example uses the learning outcome and outcome measures found in previous sections. The learning outcome chosen by the program is:

- **Upon successful completion of this program, students will be able to apply ethical reasoning in discussing an ethical issue.**

It will be measured by an indirect measure:

**Indirect Measure:** Two questions from the Graduating Student Survey (GSS)

**For each of the following skills, please indicate how well you believe your education prepared you to:**

1. Determine the most ethically appropriate response to a situation.

## 2. Recognize the major ethical dilemmas in your field.

*Students respond to these questions indicating their choice on a scale ranging from “strongly disagree” to “strongly agree”.*

The first common roadblock, *data are not collected*, can be avoided by identifying where the student work is coming from. For this indirect measure, GSS data will be obtained from the Graduate College. Because the data is collected across the institution annually, the first roadblock is avoided.

The second roadblock, copies of student work cannot be found for evaluation is discussed by the faculty and a system for obtaining the data on the program’s students is developed. The program chair volunteers to request the survey data for students in the program. This requires a special extraction of the responses for the program’s graduating students from the main survey database.

The third common roadblock, no clear system for evaluating student work, is avoided by developing a schedule for evaluation of student work. The data will be analyzed by a designated faculty member to determine the percentage of students responding at each level of the measurement scale for each question. The results of this analysis will be stored in the secure Excel database on the programs’ secure network drive. This avoids roadblocks two and three in this example.

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### **Data Analysis**

Data Analysis is the next step in the assessment process. Analysis is a process that provides better understanding of data and allows inferences to be made. It summarizes the data, enhances the value of information gathered and provides direction for decisions regarding program improvement.

This section discusses the core elements of data analysis and provides strategies for and examples of analysis. The underlying theme of this section is to illustrate how to link data to the learning outcomes and provide a basis for using data to improve student learning.

**It is important to ensure that the following information is identified in reporting your analysis in the Annual Assessment Report.**

- An indication of the number students participating in the assessment activity for each outcome measure
- The percentage of students who met or exceeded the performance criterion for each outcome measure.

### **Before Analyzing Data**

Two important steps should be completed before analyzing data. The first step is to review the data visually. Reviewing data has two benefits, it allows for the identification of outliers and possible mistakes, and it enables basic patterns or trends to emerge. For example, it may be clear that all students who took a particular class had difficulty with a particular outcome.

The second step of the process is to determine the appropriate method for analyzing the data. This can range from simply counting the number of successful students to higher powered statistical analyses. The two key factors are first to make sure the analysis method fits the data; and second, to ensure that method aligns with the program's needs. There are two types of data used in assessment each with different methods of analysis.

**Categorical data** are based on groupings or categories for the evaluation of student performance. For example, a simple passed/failed score is categorical because there are two groups into which students can be placed. Often rubrics generate categorical data by using a scale of "exceeding expectations," "meeting expectations," and "failing to meet expectations".

**Numerical data** are based on scales that reflect student performance. Tests which are scored based on the percentage of questions answered correctly generate numeric data.

**Direct measures** can generate either categorical or numerical data. Students' papers rated on an assessment rubric may be categorized as "meeting standard" or "failing to meet standard." However, the papers may be scored on a numerical scale indicating the overall quality of the paper with respect to the learning outcome.

**Indirect measures** can also generate either categorical or numerical data. By asking students on a questionnaire, "Did you have sufficient writing in the program?" a program would compile categorical data based on those saying "yes" and those saying "no." However, by asking students to indicate how strongly they agree with a statement like, "There was sufficient writing required in my program," numeric data could be generated by applying an agreement scale. (5 – Strongly Agree, 4 – Agree, 3 – Neither, 2 – Disagree, 1 – Strongly Disagree).

### **Analyzing Assessment Data**

Once the data have been reviewed and the type determined, the process of analyzing data follows. Assessment's focus on student achievement of learning outcomes typically requires the determination of counts and percentages. Together they show clearly the number of students involved in the activity and the rate of successful display of the outcome. All data, regardless of type can be analyzed using counts and percentages.

Numeric data has the additional benefit of being able to be analyzed using descriptive statistics. Mean, median, and mode provide useful information to interpret data by allowing for easier comparison between groups and tests for significant differences.

### **The Impact of Dispersion**

By examining how data are distributed around measures of central tendency, particularly the mean and median, a richer understanding of the data emerges. The standard deviation represents the average deviation of scores about the mean. Small standard deviations in student performance indicate that performance levels varied little across students in the sample. Large standard deviations indicate a greater variability in levels of student performance. Standard deviations are commonly reported with the mean. Percentiles represent the percentage of a distribution of scores that are at or below a specified value. They are calculated by the formula  $\text{Percentile} = \frac{S_b}{n} \times 100$ , where  $S_b$  is the number of scores below the score of interest, and  $n$  is the total number of scores. They are often reported with the median which by definition is the 50th percentile. For example: a median score of 75 on a final exam would be the 50th percentile indicating 50% of students scored above 75 and 50% scored below. By examining the 25th, 50th, and 75th percentiles one can gain a sense of a student's performance relative to the group.

### **Missing Data and Valid Responses**

Working with assessment data, there are many instances when data will not be available for every student. As a general rule, missing data should be excluded from calculations of percentages and descriptive statistics. If a program has ten (10) students, and eight (8) submit a needed paper for the assessment of an outcome; then eight (8) submitters become the basis of the analysis. Extending the example, if six (6) of the submitted papers meet or exceed the performance criterion, then a program would indicate 75% of students submitting papers showed mastery of the outcome rather than 60% of all students in the program.

### **Analyzing Data in Small Programs**

In programs with a small number of majors, or a small sample of data, it may be appropriate to aggregate multiple collections of data for analysis in order to be able to use findings for program improvements. For example, data may be collected from a capstone yearly to evaluate ethical reasoning, but would only be analyzed once in an assessment cycle using three years' worth of data.

### **Presenting Analysis**

Tables and graphs are useful in presenting analysis because they focus attention to specific results. Tables are useful for reporting multiple percentages and frequencies, comparison of student performance with stated performance criteria and some descriptive statistics. They provide an ordered way for readers to see results quickly for each outcome measure without having to search through text to find a particular result. Graphs can further enhance the visual impact of assessment. Graphical representations of results show differences in variables, which makes graphs highly effective in showcasing assessment results.

When sharing the results of program assessment, it may be useful to report each learning outcome and outcome measure paired with the corresponding results of the analyses, which joins the multiple outcome measures (direct and indirect) for each learning outcome. Next, compare the results with the specified performance criterion and discuss the implications of

the data as they relate to the program. Both strengths and areas for improvement are discussed, because showcasing program success is just as important as identifying areas for improvement, when it comes to making data-based decisions about the program.

Example of Table of Counts and Percentages				
	# of students evaluated	% of students		
		Below Performance Criterion	Meeting Performance Criterion	Above Performance Criterion
Demonstrate critical thinking/writing skills	20	30	50	20
Apply specialized knowledge within Anthropology	18	5	5	90

When comparing student performance to specific performance criteria, a table with the counts and percentages may be useful to summarize the data. The example in “Example of Table of Counts and Percentages” shows data collected from 20 student portfolios for two learning outcomes. It indicates the number of students completing the portfolio component and the percentage who were below, met and above the performance criterion. While 70% of students in the sample achieved or exceeded the standard, 30% were below the performance criterion.

[Click here](#) to view the **Assessment Report Form Template**  
[Click here](#) to view an **Assessment Report from B.S. in Science Education**

### The Role of Advanced Statistical Analysis

As a program’s assessment activity and data increase, more advanced analysis may be useful in understanding student learning. It is possible to study differences in performance to examine the effects of curricular change, conduct pre and post assessments to evaluate effect of specific learning experiences, and compare program students to national performance on certification examinations. The Office of Assessment can work with programs looking to incorporate these and other types of analysis into their assessment activity.

### 7. Sharing and Reporting Data

The next step of the cycle is sharing results of program assessment. This phase focuses on interpreting strengths and challenges/areas for improvement, and identifying recommendations and action steps to enhance student learning. Included in the “*Checklist of Needed Activity for Sharing Results*,” are three steps for sharing assessment results.

### Work with Program Staff to Understand Assessment Results

Including program staff in all steps of the assessment process is important to ensure its meaningfulness and effectiveness. The inclusion of program staff insights is probably most important in interpreting results and identifying strategies/action steps for improving student learning. In addition, **it is a specific expectation of our accrediting body that program staff substantially participate in assessment; at a minimum all should participate in interpreting results, identifying action steps, and implementing improvements.** The methods used for sharing results is driven by the staffing structure of the co-curricular program, with some program staff pouring over all the data generated and others simply reviewing a summary analysis. Using summary reports of assessment results and the review of the previous year's report will typically facilitate rich discussion and generate useful interpretation for the assessment report.

### **Decide Who Needs to See the Results**

In addition to staff within the program, there are potentially other audiences that wish to see the work co-curricular programs are doing to improve student learning. The first and most important group to share results with is the students themselves. Sharing results with students is both a strong message of the quality programming provided for students and can also inform students on how best to be successful. For example, if students who participate in a key activity tend to excel in other areas, then sharing that with new students could help them plan their schedules to include that activity. Similarly, sharing results with graduating seniors could provide rich information regarding context of results and/or suggestions for improvement.

In addition to students, sharing results with alumni, other departments, or the division provides opportunity to demonstrate co-curricular program continuous improvement through student learning assessment, as well as get feedback from colleagues who might be able to make suggestions and/or assist in making program improvements.

Finally, because we are expected by our accrediting body, the Higher Learning Commission (HLC), to demonstrate program quality through student learning outcomes assessment, it is critical that programs share results with the Institutional Effectiveness. By reporting results, it both provides evidence of assessment processes and opportunity to provide resources, suggestions, and feedback to improve program assessment processes and outcomes.

### **Create Appropriate Materials for Your Audience**

With many stakeholder groups, it may be appropriate to just share a small portion of the data. Plans should provide detail on how programs plan to collect and evaluate data. With assessment reports, it depends on where the program is in the assessment cycle. Plans should provide detail on how programs plan to collect and evaluate data. In yearly updates the focus should be on the evaluation/interpretation of the data, and what action steps were identified and implemented as a result. Finally, the assessment cycle reflection should provide a more holistic analysis of the assessment cycle and how program improvements have impacted learning. More detail on the specific reporting requirements is in The Appendix of the Handbook.

## **8. Make Evidence Based Decisions - Closing the Loop**

Assessment is a cyclical process that builds on previous work and activity. The “assessment loop” is closed once a program takes findings from its assessment results and implements changes based on those findings. Though not always, assessment findings often indicate a need to modify the assessment process or programming. Making any change also requires consideration of resources and developing a plan of action. The following section provides a framework for thinking about taking action to close the assessment loop.

### **When and Where “Closing the Loop” Occurs**

Change for improvement happens all the time in co-curricular programs; for example, events respond to trends, or program staff adjust their activities based on student participation and their professional judgement. However, in assessment processes specifically there tend to be two key places in which changes are mainly concentrated.

### **Plans for Improvement**

When reviewing the assessment results, it is also important to evaluate the assessment process. This involves considering all aspects involved in creating the assessment report. Reviewing learning outcomes as well as approaches to gathering data will provide direction on improving the assessment process. **Changes in the assessment process are generally done during the development of an assessment plan**, though sometimes may happen during data collection and evaluation.

### Re-Assessing Learning Outcomes

Results from Assessment Activity	Likely Use of Outcome During Next Cycle
Students not performing adequately relative to outcome	<ul style="list-style-type: none"> <li>● Consider making outcome a priority focus in the next cycle. Consider potential action steps for improvement. Re-assess more than once in the next cycle.</li> <li>● Evaluate any action steps taken during last cycle:               <ul style="list-style-type: none"> <li>○ If action steps impact student learning immediately, re-assess the outcome using the same measure early in plan.</li> <li>○ If recommendations impact student learning over an extended timeframe, schedule re-assessment for further out in plan.</li> </ul> </li> </ul>
Students performing adequately relative to outcome	<ul style="list-style-type: none"> <li>● If the same results for the past 3 years, consider scheduling re-assessment at an appropriate interval (e.g. only once in cycle).</li> </ul>
Students' performance relative to outcome yields unclear current results	<ul style="list-style-type: none"> <li>● If difficulty in determining appropriate level relates to outcome, re-write outcome and reassess during next cycle.</li> <li>● If difficulty relates to measures, retain outcome, revise measure, and re-assess during the next cycle.</li> </ul>

#### Learning Outcomes

*Re-Assessing Learning Outcomes* provides a structure for reviewing student learning outcomes. Based on findings from the student learning outcome assessment results, a program may want to retain, modify, or eliminate an outcome.

#### Measures

In addition to changing outcomes, there might be a need to change the type of data collected. If results obtained were not as expected, it is also important to know if better information could be collected to demonstrate student learning. This change could vary from modifying items on a survey to creating a new metric.



**Data Collection Procedures**

In addition to having the correct measures, it is also important to consider how data were collected in previous assessment cycles. Knowing who was included in the assessment data and when data were collected are important to understanding if changes need to be made in data collection procedures.

**Changes in the Co-Curricular Program**

Results from the student learning assessment process may indicate that programming needs to be reviewed and adjusted. These are the types of changes as a result of the yearly practice of measuring and evaluating the student learning outcome data. Changes tend to be very specific to the results of the assessment data. For example, a program may determine that an outcome in the co-curricular program is not achieved by a specific intervention, and a program may appropriately decide on several possible action steps, such as developing intervention guidelines, requiring an additional intervention, or evaluating development of the outcome across the program. Any or all of those action steps could serve to improve the outcome in the program.

**Consider Resources**

Closing the assessment loop for the assessment process or program may require the use of additional resources. Discovering the need for additional activities or programming may require resources beyond current budgets. In addition to fiscal resources, there are other resources such as time to consider. Modifying materials or programming requires time, which is a valuable resource.

**Taking Action**

Opportunities to improve the assessment process and programming may emerge from assessment results, but will not be realized without planning and implementation. The assessment loop is only closed if actions are taken to make modifications where necessary. Answering who, what, when, and where questions about assessment modifications are helpful to planning and implementing any changes. The following questions are intended as a guide in planning any changes resulting from the analysis of assessment data.

**Questions for Planning Change**

- Who will implement the change?
- Who needs to be involved to make these changes successful?
- What will be changed?
- What needs to occur in order for things to change?
- When will the changes be put in place?
- Where will they be implemented?
  
- How will they be implemented?

## **APPENDICES**

# Appendix 1

## Appendix 1A: Bloom's Taxonomy

Action verbs are abundant in the English language, but how do we know which ones are right to include in our PLO statements?

Benjamin Bloom, an American educational psychologist, created what is now known as "Bloom's Taxonomy" and this taxonomy is frequently used to assist program staff in creating PLOs that properly address student learning. Bloom's Taxonomy is a taxonomy of learning behaviors and is organized into three domains: the cognitive (knowledge/mental skills), the affective (emotional skills), and the psychomotor (physical skills). While the cognitive domain is the most well-known of the three domains, the affective and psychomotor domains also contain important learning behaviors identified by Bloom (Bloom, 1956; Krathwohl, Bloom, & Masia, 1965).

Revisions to the taxonomy structure have been made since Bloom's original work and currently each level of learning in each domain contains action verbs to describe that type and level of learning (Anderson & Krathwohl, 2001; Krathwohl, 2002).

The categories below and the action verbs that are related to each category should assist program staff in choosing the appropriate action verbs for a co-curricular program PLOs. Choose an action verb from one of the three domains for each PLO.

### Cognitive Domain: Definitions and Action Verbs

The cognitive domain involves knowledge and the development of intellectual skills (Bloom, 1956). This table includes information from the revised cognitive domain, beginning with the lowest level of learning and ending with the highest. The categories can be thought of as degrees of difficulty.

Category and Definition	Examples	Action Verbs for PLOs
<u>Remembering</u> : The learner is able to recall, restate, and remember learned information.	Recite a policy. Quote prices from memory to a customer. State the safety rules.	Choose, cite, enumerate, group, label, listen, locate, match, memorize, name, outline, quote, read, recall, recite, record, relate, repeat, reproduce, review, select, show, sort, underline, write
<u>Understanding</u> :	Rewrites the principles of	Account for, annotate,

<p>Comprehending the meaning, translation, and interpretation of instructions or problems.</p>	<p>test writing.</p> <p>Explain in one's own words the steps for performing a complex task.</p> <p>Translates an equation into a computer spreadsheet.</p>	<p>associate, classify, convert, define, discuss, estimate, explain, express, identify, indicate, interpret, observe, outline, recognize, reorganize, report, research, restate, retell, review, translate</p>
<p><u>Applying:</u> (critical thinking) The learner grasps the meaning of information by interpreting and translating what has been learned.</p>	<p>Use a manual to calculate an employee's vacation time.</p> <p>Apply laws of statistics to evaluate the reliability of a written test.</p>	<p>Adapt, apply, calculate, change, collect, compute, construct, demonstrate, dramatize, generalize, illustrate, interpret, make, manipulate, show, solve, translate</p>
<p><u>Analyzing:</u> (critical thinking) The learner breaks information into its parts to best understand that information in an attempt to identify evidence for a conclusion.</p>	<p>Troubleshoot a piece of equipment by using logical deduction.</p> <p>Recognize logical fallacies in reasoning.</p> <p>Gathers information from a department and selects the required tasks for training.</p>	<p>Analyze, appraise, arrange, calculate, categorize, compare, contrast, debate, detect, discriminate, dissect, distinguish, examine, experiment, infer, relate, research, scrutinize, sequence, sift, summarize, test</p>
<p><u>Evaluating:</u> (critical thinking) The learner makes decisions based on in-depth reflection, criticism, and assessment.</p>	<p>Select the most effective solution.</p> <p>Hire the most qualified candidate.</p> <p>Explain and justify a new budget.</p>	<p>Appraise, argue, assess, choose, compare, conclude, criticize, critique, debate, decide, deduce, defend, determine, differentiate, discriminate, evaluate, infer, judge, justify, measure, predict, prioritize, probe, rank, rate, recommend, revise, select, validate</p>
<p><u>Creating:</u> (critical thinking) The learner creates new ideas and information using what has previously been learned.</p>	<p>Write a company operations or process manual.</p> <p>Design a machine to perform a specific task.</p>	<p>Act, blend, compile, combine, compose, concoct, construct, create, design, develop, devise, formulate, forecast, generate, hypothesize,</p>

	<p>Integrate training from several sources to solve a problem.</p> <p>Revises and processes to improve the outcome.</p>	<p>imagine, invent, organize, originate, predict, plan, prepare, propose, produce, set up</p>
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### The Affective Domain: Definitions and Action Verbs

The categories in the affective domain relate to learners' attitudes, behaviors and values. Like the cognitive domain, the affective domain has hierarchical categories. As a learner moves up in the categories, they become more involved, committed and self-reliant. In the lower levels, learners are considered externally motivated and in the higher ones they are internally motivated. The information in this table begins with the lowest level of affective learning and ends with the highest level (Bloomsburg, 2011).

Category and Definition	Examples	Action Verbs for PLOs
<p><u>Receiving:</u> (awareness; external motivation) The learner is willing and open to listening to certain stimuli or phenomena.</p>	<p>Listen to others with respect.</p> <p>Listen for and remember the name of newly introduced people.</p>	<p>Accept, acknowledge, ask, attend, describe, explain, follow, focus, listen, locate, observe, receive, recognize, retain</p>
<p><u>Responding:</u> (react; external motivation) Learners actively participate and attend or react to particular phenomena. However, learners may be doing so because they are required or expected to participate, respond, or obey when asked or directed to do something.</p>	<p>Participates in class discussions.</p> <p>Gives a presentation.</p> <p>Questions new ideals, concepts, models, etc. in order to fully understand them.</p> <p>Know the safety rules and practice them.</p>	<p>Behave, clarify, comply, contribute, cooperate, discuss, examine, follow, interpret, model, perform, present, question, react, respond, show, study</p>
<p><u>Valuing:</u> (comprehend and act; external motivation) The worth or value a learner places on specific object, phenomenon, or behavior.</p>	<p>Demonstrates belief in the democratic process.</p> <p>Is sensitive towards individual and cultural differences (values diversity).</p>	<p>Accept, adapt, choose, differentiate, initiate, invite, justify, prefer, propose, recognize, value</p>

<p>Valuing is based on the internalization of a set of specific values and the learner expresses these values in his/her overt behavior.</p>	<p>Shows the ability to solve problems.</p> <p>Proposes a plan to social improvement and follows through with commitment.</p> <p>Informs management on matters that one feels strongly about.</p>	
<p><u>Organizing:</u> (personal value system; internal motivation) A learner commits to a certain set of values. During this process, the learner organizes his/her values, prioritizes some over others, reorganizes internal conflicts between them, and creates a unique value system. The learner then can make appropriate choices between things that are and are not valued.</p>	<p>Recognizes the need for balance between freedom and responsible behavior.</p> <p>Accepts responsibility for one's behavior.</p> <p>Explains the role of systematic planning in solving problems.</p> <p>Accepts professional ethical standards.</p> <p>Creates a life plan in harmony with abilities, interests, and beliefs.</p> <p>Prioritizes time effectively to meet the needs of the organization, family, and self.</p>	<p>Adapt, adjust, alter, arrange, build, change, compare, contrast, customize, develop, formulate, improve, manipulate, modify, practice, prioritize, reconcile, relate, revise</p>
<p><u>Internalizing values (characterization):</u> (adopt behavior; internal motivation) All behaviors a learner displays are consistent with the learner's value system. The resulting behaviors are consistent, predictable, and represent the characteristics of the</p>	<p>Shows self-reliance when working independently.</p> <p>Cooperates in group activities (displays teamwork).</p> <p>Uses an objective approach in problem solving.</p> <p>Displays a professional</p>	<p>Act, authenticate, characterize, defend, display, embody, habituate, influence, internalize, produce, qualify, questions, solve, validate, verify</p>

<p>learner. These behaviors could be categorized into social, emotional, and personal patterns of learner adjustment.</p>	<p>commitment to ethical practice on a daily basis.</p> <p>Revises judgments and changes behavior in light of new evidence.</p> <p>Values people for what they are, not how they look.</p>	
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### The Psychomotor Domain: Definitions and Action Verbs

The categories in the psychomotor domain relate to the development of physical skills and manual tasks. These skills demand certain levels of physical dexterity. Unfortunately, Bloom never published his manuscript on the psychomotor domain. Several scholars have published works with hierarchical categories for the psychomotor domain. For the purposes of student learning outcomes, the psychomotor taxonomy created by Simpson in 1972 will be explained here (Bloomsburg, 2011). The information in this table begins with the lowest level of psychomotor skills and ends with the highest level.

Category and Definition	Examples	Action Verbs for PLOs
<p><u>Perception</u>: The learner's ability to use his/her senses to absorb data for guiding movement.</p>	<p>Detects non-verbal communication cues.</p> <p>Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball.</p> <p>Adjusts heat of stove to correct temperature by smell and taste of food.</p> <p>Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet.</p>	<p>Describe, detect, differentiate, distinguish, hear, identify, recognize, select</p>
<p><u>Set</u>: The learner's readiness to act. This could be considered a person's mental, physical, and</p>	<p>Knows and acts upon a sequence of steps in a manufacturing process.</p>	<p>Arrange, begin, display, explain, move, proceed, react, show, state, and volunteer</p>

emotional mindsets.	<p>Recognize one's abilities and limitations.</p> <p>Shows desire to learn a new process (motivation).</p> <p>Note: This subdivision of psychomotor is closely related with the "Responding to phenomena" subdivision of the affective domain.</p>	
<p><u>Guided Response:</u> The early stage in learning a complex skill. This stage includes learner trial and error.</p>	<p>Performs a mathematical equation as demonstrated.</p> <p>Follows instructions to build a model.</p> <p>Responds to hand-signals of the instructor while learning to operate a forklift.</p>	Copies, traces, follows, reacts, reproduces, responds.
<p><u>Mechanism:</u> The intermediate stage in learning a complex skill. Learned responses are now habitual and movements can be performed with basic proficiency.</p>	<p>Use a personal computer.</p> <p>Repair a leaking faucet.</p> <p>Drive a car.</p>	Assembles, calibrates, constructs, dismantles, displays, fastens, fixes, manipulates, measures, mends, mixes, organizes, sketches
<p><u>Complex Overt Response:</u> The expert stage in learning a complex skill. The learner can perform motor acts that involve complex movement patterns that are quick, accurate, and highly coordinated. The learner performs without hesitation.</p>	<p>Maneuvers a car into a tight parallel parking spot.</p> <p>Operates a computer quickly and accurately.</p> <p>Displays competence while playing the piano.</p>	<p>Assembles, calibrates, constructs, dismantles, displays, fastens, fixes, manipulates, measures, mends, mixes, organizes, sketches</p> <p>*Note: while these are the same action verbs as in the mechanism stage, here an adverb or adjective should be placed before the verb to indicate that the performance is quicker and</p>



		more accurate.
<u>Adaptation:</u> Skills are well developed and the learner can modify movement patterns to fit special requirements.	<p>Responds effectively to unexpected experiences.</p> <p>Modifies instruction to meet the needs of the learners.</p> <p>Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).</p>	Adapts, alters, changes, rearranges, reorganizes, revises, solves
<u>Origination:</u> The learner creates new movement patterns to fit a particular problem or situation. The learner is creative with his or her highly developed skills.	<p>Constructs a new theory.</p> <p>Develops a new and comprehensive training programming.</p> <p>Creates a new gymnastic routine.</p>	Arranges, builds, combines, composes, constructs, creates, designs, initiates, makes, modifies, originates

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[http://carla.umn.edu/assessment/vac/improvement/p\\_5.html](http://carla.umn.edu/assessment/vac/improvement/p_5.html).

## Appendix 1B: Useful Assessment Links

- National Institute for Learning Outcomes Assessment:  
<https://www.learningoutcomesassessment.org/ourwork/assignment-library/>
- Accrediting Board for Engineering and Technology (ABET) Assessment Planning:  
<https://www.abet.org/wp-content/uploads/2015/04/do-grades-make-the-grade.pdf>
- Susan Hatfield - Assessing Your Program-Level Assessment Plan:  
[https://www.cuw.edu/about/offices/institutional-effectiveness/\\_assets/Assessing%20Your%20Assessment%20Plan-Hatfield.pdf](https://www.cuw.edu/about/offices/institutional-effectiveness/_assets/Assessing%20Your%20Assessment%20Plan-Hatfield.pdf)
- Joanne Liebman Matson & Belinda Blevins-Knabe - Using Rubrics to Assess General Education:  
<https://assessmentinstitute.iupui.edu/overview/institute-files/2018-institute/monday-2018/matson-2018.pdf>
- Susan Hatfield - Developing an Assessment Plan:  
<https://www.k-state.edu/assessment/resources/workshops/ag2.pdf>
- Susan Hatfield - Writing Outcomes & Measures: <https://slideplayer.com/slide/4546257/>
- Susan Hatfield - Really Big Mistakes in Assessment: (Automatic Download)  
[https://www.lawrence.edu/mfhe/www\\_core/Everyone/SusanHatfieldTalk.ppt](https://www.lawrence.edu/mfhe/www_core/Everyone/SusanHatfieldTalk.ppt)
- Susan Hatfield - Suggestions for Program Level Actions Taken:  
<https://bergen.edu/wp-content/uploads/CIE-Suggestions-for-Program-Level-Actions-Taken.pdf>
- Monica Stitt - Collect & Review Evidence of Learning:  
<https://drive.google.com/file/d/1pKZ95Wxzzv3R9TWETy551pqnffDGr4NY/view>

## Appendix 1C: Assessment Plan Rubric

Click [here](#) to view the Assessment Plan Feedback Rubric

Criteria	Non-Existent/Underdeveloped	Developing	Well Developed	Summative Comment - Rationale /Evidence for Rating	Formative Comment - Suggestion for Improvement
<b>Assessment Planning</b>	There is no formal plan for assessing each program learning outcome.	The program has identified assessments, and data to collect, but has not identified a multi-year plan for assessing their program.	The program has a fully-articulated, sustainable, multi-year assessment plan that describes when, where and how each learning outcome will be assessed. There is evidence that the plan is routinely examined and revised, as needed.		
<b>Program Mission Statement</b>	There is no program mission statement provided.	The program mission statement is present but does not clearly define the scope and purpose of the program degree and/or does not state the	The program mission statement defines the broad purposes the program is aiming to achieve, describes the community the program is designed to serve, and states the		

		values and guiding principles which define program standards.	values and guiding principles which define its standards.		
<b>Program Learning Outcomes (PLOs)</b>	PLOs do not meet any of the SPAM (Specific, Purposeful, Attainable, Measurable) criteria in the Assessment Handbook created by the SLAC.	PLOs meet some but not all of the SPAM (Specific, Purposeful, Attainable, Measurable) criteria in the Assessment Handbook created by the SLAC.	PLOs meets all SPAM (Specific, Purposeful, Attainable, Measurable) criteria in the Assessment Handbook created by the SLAC.		
<b>Curriculum Map</b>	There is no curriculum map provided.	The curriculum map is partially complete but does not reflect a relationship between PLOs and the required curriculum/or there is no mention of the PLOs being introduced, reinforced, or mastered within the curriculum map.	The curriculum map identifies the relationship between each PLO and the required program curriculum and identifies the level of competency expected (i.e., introduced, reinforced, mastered).		

<p><b>Alignment between the Program Learning Outcomes (PLOs) and the Degrees of Excellence Institutional Learning Outcomes (DOE ILOs)</b></p>	<p>There is no evidence of alignment between the Program Learning Outcomes and the Degrees of Excellence Institutional Learning Outcomes.</p>	<p>The program attempted to align the Program Learning Outcomes and the Degrees of Excellence Institutional Learning Outcomes, but the alignment is unclear.</p>	<p>The alignment between the Program Learning Outcomes and the Degrees of Excellence Institutional Learning Outcomes is clear.</p>		
<p><b>Alignment between PLOs and Outcome Measures</b></p>	<p>Specific outcome measures are not articulated for each PLO.</p>	<p>Outcome measures are specified, but alignment between the outcome measure and PLOs is sometimes clear, but more specificity is needed.</p>	<p>The program presented the PLOs and outcome measures in such a way that the alignment was explicit.</p>		
<p><b>Direct/Indirect Outcome Measures</b></p>	<p>Outcome measures are not identified as direct or indirect, or are not correctly identified.</p>	<p>Some but not all of the outcome measures listed correctly identify the measures as direct or indirect.</p>	<p>All of the outcome measures listed correctly identify the measures as direct or indirect.</p>		

<b>Performance Target</b>	There is no evidence of a performance target.	Performance target is identified for some but not all PLOs, or the goal does not appear to be attainable based on previous assessment data.	Performance target has been listed for each PLO. Performance targets appear reasonably attainable based on previous assessment data.		
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### Definitions

**Assessment Planning:** Faculty should develop explicit plans for assessing each outcome. Programs need not assess every outcome every year, but faculty should have a plan to cycle through the outcomes over a reasonable period of time, such as the period for program review cycles. **Questions:** Does the plan clarify when, how, and how often each outcome will be assessed? Will all outcomes be assessed over a reasonable period of time? Is the plan sustainable, in terms of human, fiscal, and other resources? Are assessment plans revised, as needed?

**Program Learning Outcomes:** Program learning outcomes should be written to meet the SPAM criteria. They should be specific, purposeful, attainable, and measurable. A specific outcome targets one key element of what you will be measuring in student learning. A purposeful outcome should be relevant to your students and your program. It should directly impact your field and those within it. An attainable outcome should reflect what the student will be able to complete within a reasonable time that can be measured. A measurable outcome has to be measured via a direct or indirect measurement. **EXAMPLE:** “Construct an educational philosophy statement that values reflection about teaching practice and guides instructional and professional decisions.”

**Alignment:** Student should be held responsible for mastering learning outcomes that systemically support development in their discipline. The curriculum should be explicitly designed to provide opportunities for students to develop increasing sophistication with respect to each outcome. This design often is summarized in a curriculum map—a matrix that shows the relationship between courses in the required curriculum and the program’s learning outcomes. Pedagogy and grading should be aligned with outcomes to foster and encourage student growth and to provide students helpful feedback on their development. Since learning occurs within and outside the classroom, relevant student services (e.g., advising and tutoring centers) and co-curriculum (e.g., student clubs and campus events) should be designed to support the learning outcomes. **Questions:** Is the curriculum explicitly aligned with the program learning outcomes? Do faculty select effective pedagogy and use grading to promote learning? Are student support services and the co-curriculum explicitly aligned to promote student development of the learning outcomes?

## Appendix 1D: Assessment Report Rubric

Click [here](#) to view the Assessment Report Feedback Rubric

Criteria	Non-Existent/ Incomplete/ Under Develop	Developing	Well Developed	Summative Comment - Rationale/ Evidence for Rating	Formative Comment - Suggestion for Improvement
<b>Assessment Results</b>	No assessment results provided.	Results listed for some but not all of the PLO's and/or provides minimal detail to allow stakeholders of the report to interpret the assessment results.	Results listed for some but not all of the PLO's and/or provides minimal detail to allow stakeholders of the report to interpret the assessment results.		
<b>Data Analysis of the Assessment Results (Specific explanation of what the results mean, and why they occurred)</b>	No clear analysis of results provided.	A general analysis is provided, but lacks a specific explanation for the quantitative/qualitative results of the PLO's taken together as a whole. The analysis does not specifically identify areas of strength or concern. Interpretation of assessment results are at the course, rather than program level,	A specific and detailed explanation of the quantitative/qualitative results for the PLO's taken as a whole. The analysis identifies program level areas of strength and concern. Interpretation of assessment results is at the program level, offering a possible explanation for reported performance levels. Includes discussion of previous plans for improvement and implemented changes and the		

		but do offer possible explanations for performance levels. No reference to previous plans for improvement or implemented changes and possible impact on this assessment cycle.	possible impact on this assessment cycle.		
<b>Closing the Loop - Use of Results and Implementation on the Assessment Plan (Plans for Improvement)</b>	No evidence that assessment results and analysis were shared and discussed with program faculty members. No proposed changes to improve program learning outcome performance were reported.	There is some evidence that program faculty shared and discussed the assessment results and analysis. There are proposed plans to improve student learning performance, but the plans do not connect to previous plans for improvement.	There is clear evidence that program faculty shared and discussed the assessment results and analysis. There are specific plans to improve student learning that connect back to previous plans for improvement.		

## Appendix 2

### Appendix 2A: Glossary



**Alignment** is the connection between learning objectives, learning activities, and assessment. It conveys the idea that critical program/course components work together to ensure learners achieve the desired learning outcomes.

**Assessment** is the process of gathering and interpreting evidence of the extent to which students have achieved the target knowledge, understanding, skills, and attitudes or dispositions identified by the program.

**Course Learning Outcome (CLO)** (see Student Learning Outcomes)

**Degrees of Excellence Institutional Learning Outcomes (DOE ILO)** (see Student Learning Outcomes)

**Direct Measure** involves looking at actual samples of student work produced in our programs. Ex. performance assessments, capstone projects, senior theses, exhibits or performances, and standardized exams.

**Indirect Measure** gathers information through means other than looking at actual samples of student work. Ex. satisfaction surveys, exit interviews, and focus groups.

**Outcome Measure** is the activity, instruments, or assignment used to measure student competency in the outcome.

**Performance Target** refers to the desired result (or desired level of competency) for each program student learning outcome. It is the minimum level of competency indicating the program student learning outcome is met.

**Program Learning Outcomes** (see Student Learning Outcomes)

### S.P.A.M

**Specific** Your student learning outcome should begin with a verb and target *one* key competency per outcome.

**Purposeful** Your student learning outcome should be relevant to your students and your program. It should directly impact your field and those within it. The outcome should be stated in terms of a student's terminal performance as a learning product.

**Attainable** Your student learning outcome should reflect that the student will be able to complete the outcome within a reasonable time that can be measured.

**Measurable** Your student learning outcome has to be measured via direct or indirect measurement.

**Student Learning Outcomes (SLOs)** are the accumulated knowledge, skills, and attitudes that students develop during a course of study.

**Course Learning Outcomes (CLOs)** refer to the course-level student learning outcomes of a major program. These are the learning outcomes that a student is expected to achieve upon completion of the course.

**Degrees of Excellence Institutional Learning Outcomes (DOE ILOs)** articulate higher expectations for students' success, providing an inclusive framework for a distinctive educational experience emphasizing lifelong learning, intellectual growth, citizenship, and social responsibility.

● **Intellectual skills**—emphasizing analytic inquiry, information literacy, engaging diverse

perspectives, quantitative fluency, and communication fluency.

● **Integrative knowledge**—emphasizing the ability to produce, independently or collaboratively, an investigative, creative, or practical work that draws on specific theories, evidence, tools, and methods from diverse perspectives.

● **Specialized knowledge in the major**—emphasizing student competency in the program outcomes of the major field(s) of study.

● **Capstone Experience in the Baccalaureate Degree**—emphasizing the integration of the major with baccalaureate degree expectations reflecting the intersection of academic and post-baccalaureate settings.

● **Citizenship**—emphasizing leadership and engagement, experiential learning, cultural foundations, and personal and career development.

**Program Learning Outcomes (PLOs)** refers to the academic major's identified student learning outcomes. These are the student learning outcomes that a student in the major is expected to achieve upon program completion. Ex. includes broader elements such as graduation rates, faculty and graduate student's publications, and job placement.