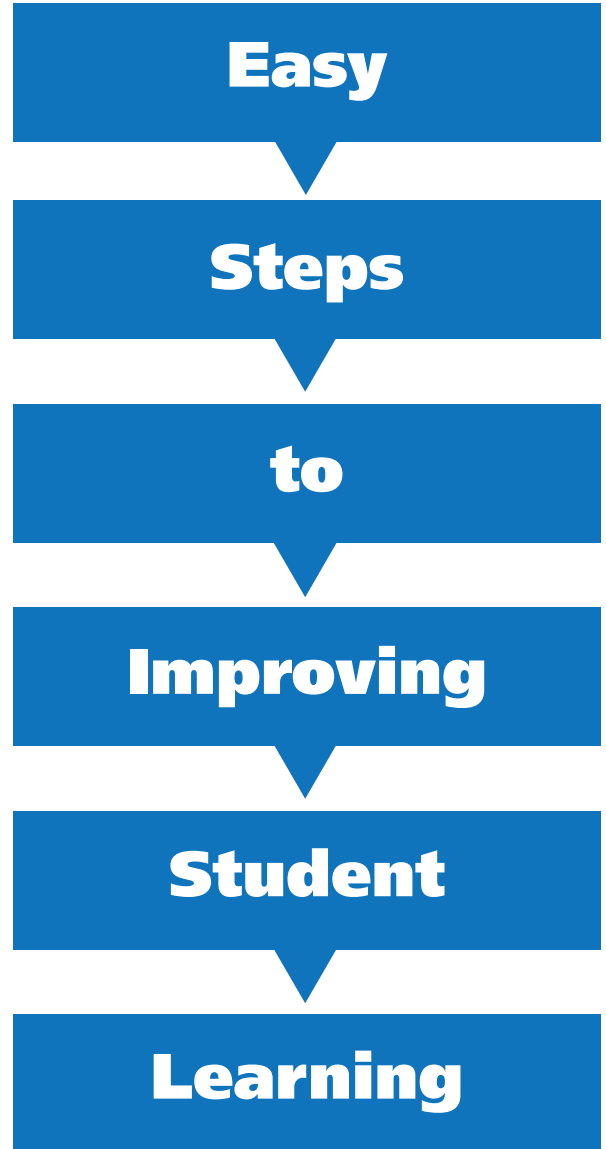




Academic Program Assessment



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Foreword

Dear colleagues,

Our students' ability to learn and succeed depends on our faculty and staff. By delivering high quality instruction and support systems, we prepare students to thrive in pursuit of their personal and professional endeavors. Program assessment is a tool for achieving that important goal; it's how we work to continually explore and improve student learning and student success.

Through the assessment process, we define what students should gain from our programs, gather evidence of how well we're helping them meet those targets, and analyze that evidence to see where we are achieving excellence and where we could do better to support our students. That process leads us to think reflectively about our goals, program design, and program delivery, and how they intersect to support students' learning and student success. It enables us to make more informed decisions about our programs' design and implementation on an ongoing basis. In other words, we do assessment because we care about our students' success.

The handbook that you are about to read will introduce you to the basics of program assessment at Wayne State, but it is not your only resource. You have many colleagues who can serve as "assessment mentors," as well as a director of assessment whose primary role is to support your program's assessment planning. Various assessment committees can answer your questions, and the Office for Teaching and Learning offers workshops and consultations focused on course-level assessments. You can also find extensive resources on the WSU Assessment website.

Assessment benefits us all – students, faculty, staff, and the university as a whole – by fostering continued excellence and improvement. I look forward to your ongoing engagement and participation in this important process.

Keith E. Whitfield, Provost

How to Use This Handbook

Each chapter in the handbook can be read and used independently.

You may also read the handbook from beginning to end.

Direct links are embedded into the text of the chapters that, when clicked, give you more detailed information about a topic or term.

Underlined words indicate clickable direct links.

Either the Table of Contents or the Quick Reference can be used to quickly access a section of the handbook.

The Quick Reference uses clickable direct links.

Quick Reference

Direct Links to Handbook Sections

Direct Links

This is a brief overview of getting started on developing program assessment materials, plans and timelines. Each item below is directly linked to a section of the handbook. By clicking on the link you will be taken directly to that section and can start work on a particular section of interest to you.

.....

Mission statements
Learning outcomes
Curriculum maps

- Develop, review or revise mission statements, program learning outcomes and curriculum maps.

.....

Existing assessment methods

- Inventory existing assessment methods and evaluate them for usability.

.....

New assessment methods

- Construct or identify new assessment methods to meet the gaps that the existing methods do not address.

.....

Results

- Analyze the data and draw conclusions, interpretations and inferences that are turned into results.

.....

Action plan

- Create an action plan.

.....

Timeline

- Create a specific timeline for implementing the action plan.

.....

Report

- Report to stakeholders regarding your conclusions.

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Chapter 1 Why assess?

Introduction to program assessment and the assessment process

Assessment for learning:

What is it?

Who does it?

Program assessment is a term commonly used to encompass the process of gathering and using evidence about cumulative student learning to guide improvements to our programs. It complements assessment of individual student performance by focusing on students as a group. Program assessment results in action; programs must interpret the evidence they collect and act on that evidence for assessment to benefit student learning. Then programs re-evaluate to see if changes had the desired effect on student learning.

At Wayne State, all academic degree programs (Bachelors, Masters, Doctorates, and Certificates) and some non-degree programs (e.g. Composition, minors) engage in program assessment. Faculty are the content area experts and therefore are the primary drivers of assessment. Students, staff, and other stakeholders may also participate in assessment.



Stakeholders are the sum of everyone who is interested in, supports or is affected by your program. Primary stakeholders are typically considered to be students, faculty, staff, and administrators. But others such as alumni, community members, or accreditors may also have interest in and be supportive of your program.

Why do assessment?

As members of an institution of higher education, student learning is central to Wayne State's mission. Program assessment helps us to carry out that mission to the best of our ability by encouraging ongoing, evidence-based decision-making that enhances students' success. In addition, evidence-based investigation of student learning can contribute to the scholarship of teaching and learning, as some of our WSU colleagues have already demonstrated. Furthermore, at the local level, program assessment supports students, faculty, and staff by helping programs to:

- Articulate their goals through a mission statement.
- Measure how well programs are achieving those goals
- Use that information to improve program quality
- Communicate programs' successes and needs effectively

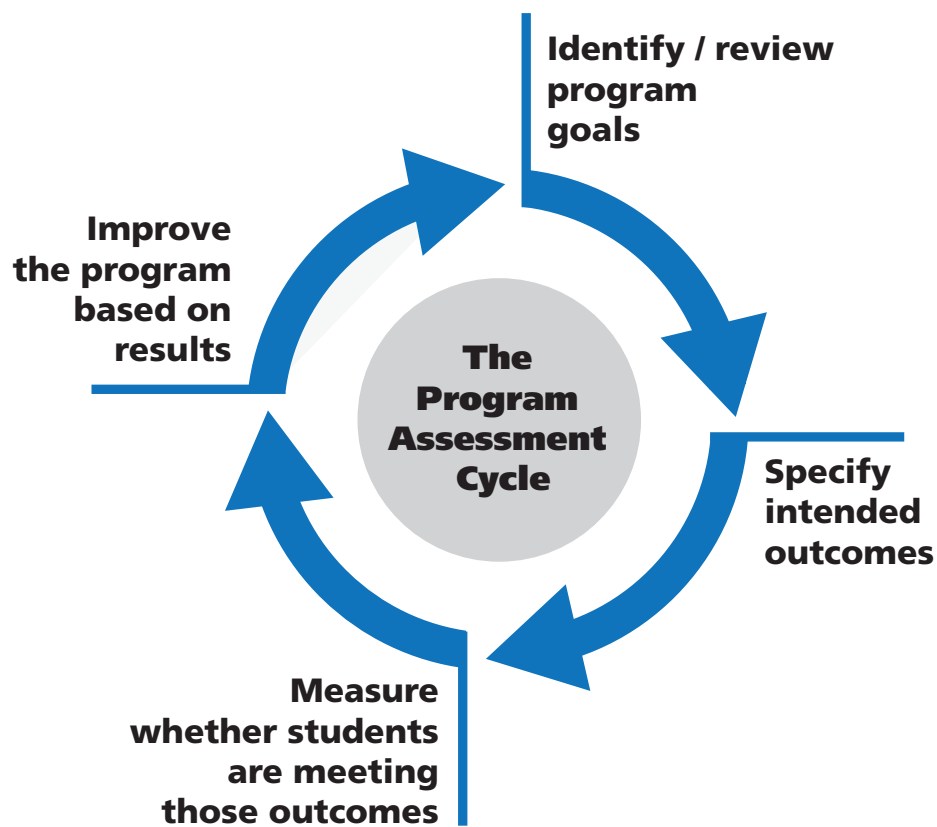
A similar national focus on the continuous improvement of teaching and learning is reflected in the high priority that our accrediting agency, the Higher Learning Commission, places on effective, useful program assessment.

Assessment process overview

Program assessment is a cycle focused on continuous improvement of student learning (see Fig. 1). During the cycle, programs identify their goals, specify what they expect students to learn, measure whether students are learning at target levels set by the program, and use the results of those measurements to inform programmatic decisions and actions.

Your decisions and actions then become part of the next cycle in the feedback loop; programs evaluate whether their decisions and actions led to improved student learning. You may refine or redefine goals, expected learning outcomes, or assessment methods as well as make changes to the program itself as part of continuous improvement efforts. You may also celebrate and share successes!

Figure 1 The Program Assessment Cycle



Specific documentation corresponds to each part of the cycle: Broad program goals are articulated in a mission statement. Expectations for student learning are precisely stated in learning outcomes, which are aligned with program activities in a curriculum map. Measurement processes are described in assessment methods, and reports of results. The use of those results for program improvement is explained in action plans and a timeline for implementation. Reports to stakeholders provide an opportunity to share your assessment work with your students, colleagues, and your broader community. Other sections of this guide provide information about each of these elements.

**WSU's
Assessment Timeline**

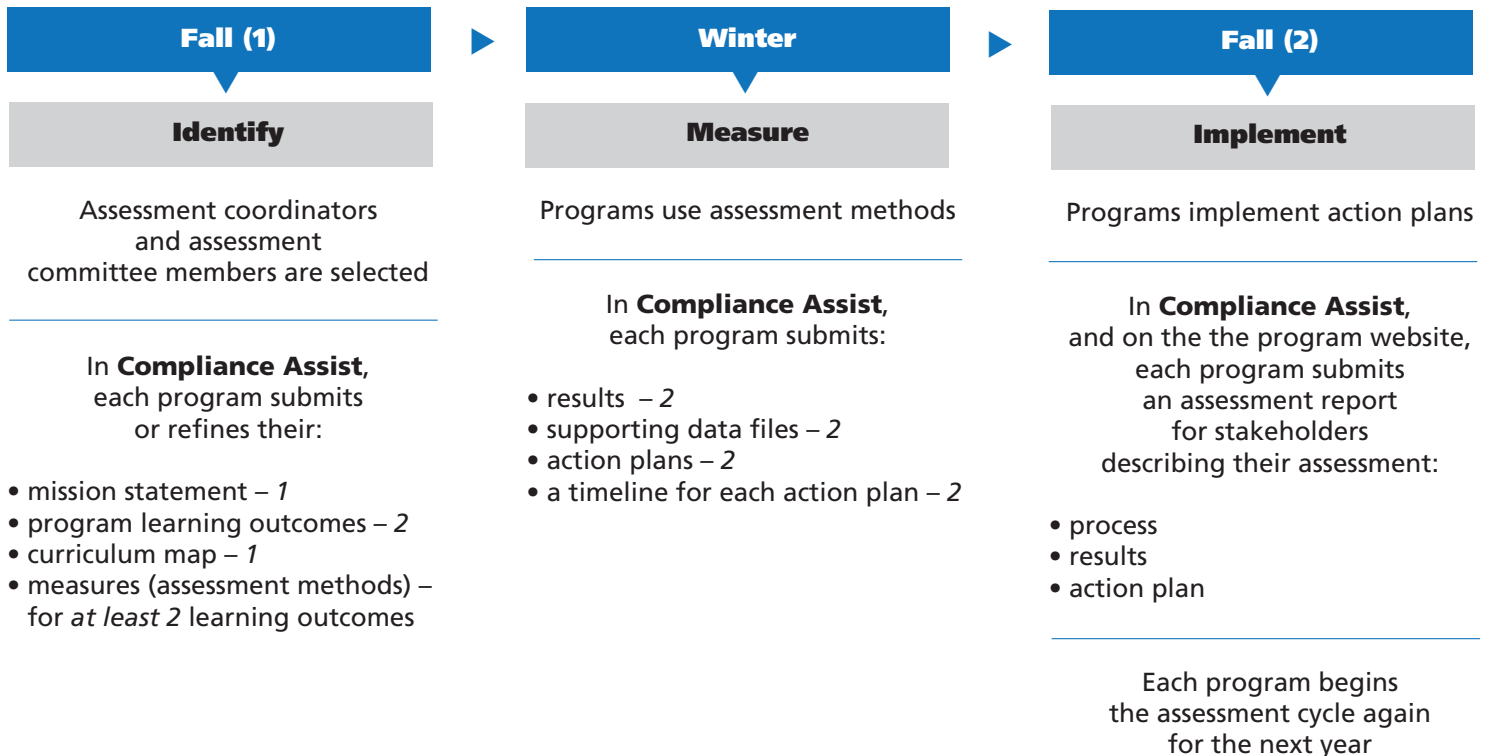
The assessment cycle is carried out in stages throughout the academic year, with semester-by-semester targets for documenting your program's progress. Each Fall semester, programs focus on making sure that their mission statement and learning outcomes reflect the program's priorities, that their curriculum map incorporates any changes to the curriculum or to the learning outcomes, and that the assessment methods will deliver actionable evidence of student learning.

Winter semesters are focused on gathering, analyzing, and interpreting data as the basis for developing an action plan and setting timelines for making future improvements to support students' success. A report of the year's assessment plan, results, and future actions is posted to the program or unit website the following Fall semester.

If your program has a timeline that doesn't perfectly align with the academic year, please consult with the Director of Assessment to discuss how to fit the cycle to your program's calendar

The timeline will be similar from year to year (see Fig. 2). The reporting cycle runs from September 1 to the following August 31.

Figure 2 Program assessment timeline for Compliance Assist



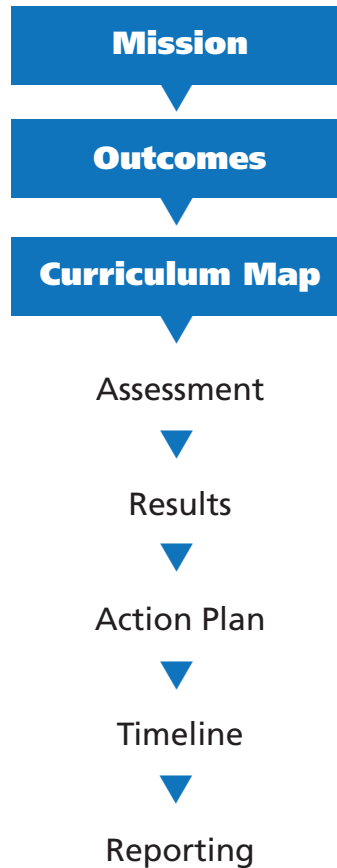
Who should help with assessment planning?

Assessment coordinators and assessment committee members are directly responsible for managing the program assessment process. However, responsibility for program assessment rests with everyone involved in a program. For example, individuals may be responsible for discussing and agreeing on what outcomes to assess and how to assess them, or for scoring student work that has been selected as assessment data, or for aggregating data from multiple people and providing a summary to colleagues who will together interpret the results and decide how to use them to improve student learning. How this process is managed may be different for each unit or program area.

Each program's culture, needs, and ways of working collectively influence assessment. However, at some point your program will decide who manages the process, who develops the assessments, who collects the data, who analyzes and interprets the data, who implements the plan and creates the reports, and who ensures that reviews, revisions, and actions plans are carried out.

Chapter 2 Where to begin?

Getting started by establishing a foundation



Academic programs' assessment plans consist of eight elements. These elements provide the necessary foundation for building understanding of student learning and making principled curricular decisions based on supporting data and evidence.

In Chapter 2, the first three elements of the assessment plan will be the focus. A mission statement articulates your program's broad goals, learning outcomes state behaviors that define the broad goals more concretely and in measurable form, and curriculum maps link those goals to program activities. Concrete suggestions and examples will help you develop them for your own program.

Mission

A program mission statement is a sentence or short paragraph that describes the program's purpose, goals, offerings and stakeholders.

When developing a program mission statement you state, in a concise way, why your program exists and what you hope to accomplish for and with the students who are in your program. It also provides information for your stakeholders regarding the directions and goals of your program.

Explicitly stating a program's mission helps you:

- express program benefits to stakeholders
- attract students
- align programmatic decisions and priorities with the program's overarching goals
- more effectively request support
- make improvements to your program

How to write a program mission statement

A mission statement, for the purposes of assessing student learning, includes brief descriptions of the program's:

Purpose

Why does the program exist? What are its general goals? What are its *unique* or *signature features*?

Offerings

What do students gain from the program in broad terms? How are these gains specific to the discipline (e.g. content areas, subfields, special learning experiences or opportunities)?

Target audience/Stakeholders

Who benefits from the program?

The mission statement should be aligned with University and division missions, and be realistic and achievable. Students are the primary stakeholders, so the mission statement should be written for a general, not expert, audience, and focus on how the program supports student learning.

Examples of mission statements

Four sample mission statements are provided below for undergraduate, graduate, and certificate programs. In the first two examples, colored brackets identify purposes (red), offerings (green), and stakeholders (blue). Can you identify these elements in the other two examples?



DANCE (BACHELOR OF FINE ARTS)

[purpose]
[offerings]
[stakeholders]

The mission of the BFA Program in the Maggie Allesee Department of Theatre and Dance is to [prepare] [students] [for professional careers in dance.] The Program provides preparation for pursuits in [performance, choreography and production through practical study of dance techniques, theoretical and historical studies, exploration of current trends in the art and frequent engagement with professional dance artists.] The program provides [abundant performance experiences] for [BFA students as it serves the urban metropolitan community] in which Wayne State University resides.



TAXATION (MASTER OF SCIENCE)

[purpose]
[offerings]
[stakeholders]

Our mission is to [prepare] [students] [for careers requiring a high degree of specialized tax knowledge] [in public accounting, private industry, and government by emphasizing a thorough grounding in the principles of tax research, corporate taxation, and flow-through entities as well as ethics and professional communications.]



BIOCHEMISTRY & MOLECULAR BIOLOGY (DOCTOR OF PHILOSOPHY)

The mission of the PhD program in Biochemistry and Molecular Biology is to train graduate students through advanced course work, critical analysis of the primary literature and apprenticeship to a practicing scientist to develop an understanding of the theoretical and practical aspects of biomedical research. Special emphasis is placed upon critical thinking and written and oral communication skills to further prepare graduating students to pursue a variety of different career options where a thorough understanding of research is essential.



NANOENGINEERING (UNDERGRADUATE CERTIFICATE)

The nanoengineering certificate program offers students multidisciplinary, in-depth training in the emerging technological area of nanotechnology by offering new lecture, laboratory, and seminar courses that cross traditional departmental and disciplinary boundaries. Students gain hands-on experience with advanced instrumentation and cleanroom operation. Students conduct research with faculty and industrial partners. The certificate program fulfills the educational needs of working engineers and technical professionals, targeting especially those in the Metro Detroit area and Windsor, Canada.

Mission statements help both the program and students understand the purpose and goals the program believes to be of value. They provide a solid foundation for developing outcomes and assessments that set the direction for the program and result in direct benefits to students and other stakeholders.

Outcomes

Program learning outcomes are measurable statements of what graduating/exiting students should know, be able to do, believe, or value as a result of participating in your program.

Program learning outcomes specify the goals of the program in terms of specific knowledge, skills, or attitudes the program intends to develop in students. Outcomes articulate what students know or can do once they've completed your program. Program learning outcomes are the foundation for faculty and staff to plan and deliver appropriate learning activities and opportunities and to create valid assessments within a strategically designed curriculum.

Program learning outcomes are complemented by course learning outcomes, which provide the building blocks that cumulatively enable students to achieve program learning outcomes. Figure 3 is a representation of the relationships between program learning outcomes and course learning outcomes.

Figure 3 Relationships among program learning outcomes and course learning outcomes.

Doctor of Physical Therapy

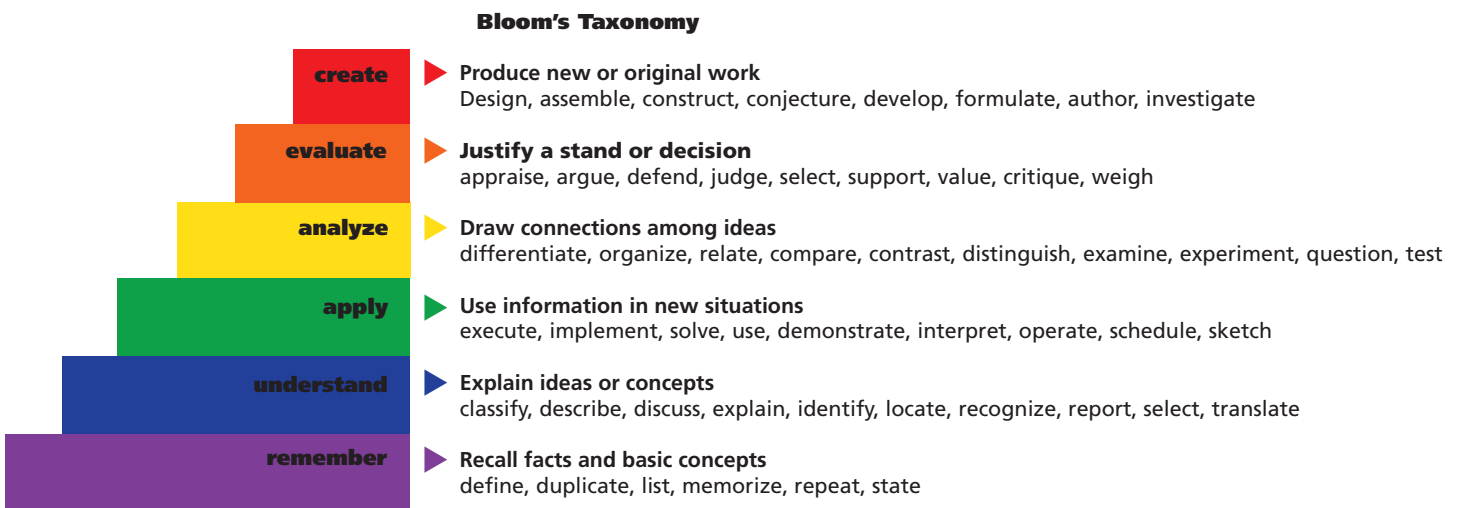
Program Learning Outcomes (PLOs)	Course Learning Outcomes (CLOs)
<p>PLO1 Effectively use verbal communication</p>	<p>▶ PT 6300 / 6400 Discuss findings from a research article.</p> <p>PT 7720 Compare research findings with previous knowledge.</p>
<p>PLO2 Examine patients using appropriate tests & measures</p>	<p>▶ PT 5320 Demonstrate appropriate test or measure during practical examination.</p> <p>PT 7100 / 7200 Utilize tests and measures during an examination.</p> <p>PT 8800 / 8820 Interpret findings of tests and measures.</p>
<p>PLO1 Provide interventions to achieve patient goals</p>	<p>▶ PT 5100 Recall appropriate exercise intervention.</p> <p>PT 6100 / 7320 Implement an exercise program for a patient who has a neurologic or orthopedic injury.</p> <p>PT 8800 / 8820 Select an exercise intervention for an actual patient.</p>

How to write learning outcomes

Program learning outcomes and course learning outcomes carry the same information – they specify one measurable, observable behavior that describes a desired result of learning. The only difference between program and course learning outcomes is their scope; program outcomes are broader than course outcomes.

Bloom's Taxonomy (see Fig. 4) is one useful tool to help you select precise wording to specify student behaviors and levels of performance in each outcome. Consider, for example, how your expectations for "knowing" differ for undergraduate versus graduate students. For undergrads, you may expect them to summarize or describe research on a particular topic, but you might want graduate students to evaluate the research on that topic. Bloom's taxonomy helps you to differentiate educational outcomes along a continuum from more basic to more complex cognitive tasks. (He, his co-authors, and subsequent researchers have also developed affective and psychomotor taxonomies.) The cognitive taxonomy is represented in many ways; the version below is just one:

Figure 4 Bloom's Taxonomy
(adapted from <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy>)



**Examples of
program learning
outcomes**

Multiple learning outcomes from different programs are provided below. For the first two the verbs are highlighted in the color that matches their place in Bloom's Taxonomy. Can you identify what levels of Bloom's Taxonomy are used for the outcomes from the other program? Does the cognitive level align with your expectations for the level of the degree program (e.g., undergraduate vs. graduate)?



HISTORY (MASTER OF ARTS)

- MA students will [locate] relevant primary and secondary sources.
- MA Students will [analyze] relevant primary and secondary sources.
- MA Students will [analyze] current historiographical debates in a chosen field of history.
- MA Students will [articulate] a historical argument, using evidence based in primary and secondary sources.



NURSING (BACHELOR OF SCIENCE)

- [apply]** • [Student] **[integrates]** knowledge of health promotion, health restoration and supportive measures in management of nursing care of individuals, families and communities in diverse populations.
- [evaluate]** • [Student] systematically **[evaluates]** the processes and outcomes of healthcare using established criteria.
- [evaluate]** • [Student] **[integrates]** critical reasoning skills in the application of theoretical knowledge and research evidence in professional nursing practice.
- [apply]** • [Student] **[utilizes]** innovations and technology in planning, delivering, and evaluating nursing care and nursing care outcomes.



MECHANICAL ENGINEERING (BACHELOR OF SCIENCE)

[Note: Mechanical Engineering has a disciplinary accrediting body. Their outcome statements match those required by the accreditor.]

Students will be able to demonstrate an ability to:

- apply knowledge of mathematics, science, and engineering.
- design and conduct experiments, as well as to analyze and interpret data.
- function on multidisciplinary teams.

Curriculum Maps

A program curriculum map aligns program learning outcomes, program activities and curricular development in one visual display.

A curriculum map displays the alignment of program outcomes with your program activities (e.g., courses, but also other learning benchmarks such as qualifying exams, the thesis defense or internships). It also indicates a developmental trajectory for each outcome by identifying how each activity contributes to the development of student learning whether it introduces, develops, or shows students' mastery of the outcome. As seen in the examples below, programs may choose other words or phrases to describe developmental levels.

Curriculum maps are useful for:

- curricular planning
- selecting appropriate courses for gathering program assessment data
- interpreting assessment results in the broad context of the program

How to create a curriculum map

When you create a program curriculum map you can list the program learning outcomes or benchmarks along one axis of a table, and each program activity or course along the other axis. Program outcomes can be identified by number, abbreviated or provided in full. You will choose the method that best fits your program and what you need to know to

develop appropriate assessments based on the curriculum. Your curriculum map provides an overview of your entire program and may suggest stages or courses where program assessment measures might be effectively introduced.

At the intersection of each column and row you indicate the developmental stage of the activity which supports the outcome. For example, is a concept or idea introduced in one course, applied in a second course and then mastered in a capstone course. Another approach you could use would be talk about beginning, intermediate and advanced knowledge or skills. Because there are many possible approaches you will want to provide a key to the developmental stages for your curriculum map.

Some programs even represent their curriculum map graphically using the developmental levels in Bloom's Taxonomy (see Bloom's Taxonomy: Fig. 4, p.17).

Examples of curriculum maps

Two excerpts from curriculum maps are provided. They demonstrate two different methods for using rows and columns as well as different conceptual structures for describing developmental levels.

In the Sociology example, both courses and a benchmark (Essay/Thesis) are included. This map has the courses listed in the rows of the table and the learning outcomes in the columns. The table uses initials to indicate where the learning outcome is addressed at the beginning level (B), the developing level (D) and the mastery level (M). There are blanks in some columns; not all activities need to support all outcomes.



SOCIOLOGY (MASTER OF ARTS; EXCERPT)

Key:

B = Beginning level of knowledge; **D** = Developing knowledge; **M** = Mastery of knowledge

Course	Sociological Theory	Research Methods	Data Analysis	Writing	Source Use	Critical Thinking
SOC 6050	B			B	B	B
SOC 6060	B			B	B	B
SOC 7200		B	B	D	D	D
SOC 6280			D	D	D	D
SOC 7030	D	D	D	D	D	D
Essay/Thesis	M	M	M	M	M	M

In the next example, color coding is used to indicate the type of expected learning in each course. Benchmarks are added in terms of program-specific needs, such as communication, the PT Examination, and PT Interventions. Rows indicate learning outcomes while columns are the courses in the program. In addition, this program is more regulated in terms of students proceeding through courses in a linear fashion. Other programs may have students choosing more flexibly when they take courses in terms of sequencing.



PHYSICAL THERAPY (DOCTORATE; EXCERPT)

Key:

= Beginning level of knowledge

= Developing knowledge

= Mastery of knowledge

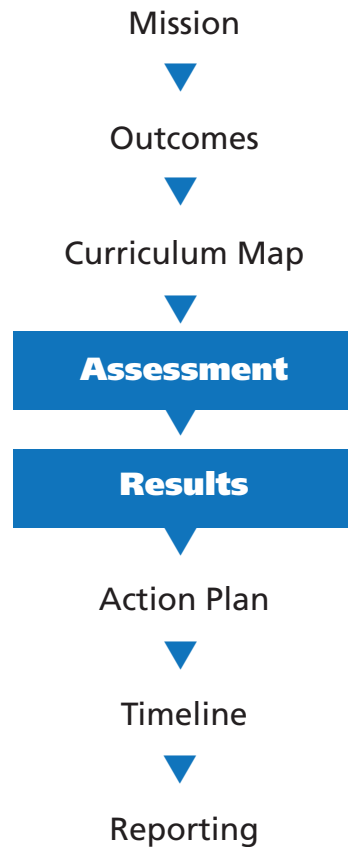
Curriculum Map for Doctor of Physical Therapy (Excerpt)

Curriculum Map	PT 5020	PT 5120	PT 5320	PT 6300	PT 6400	PT 5100	PT 6200	PT 6100	PT 7720	PT 8800
	Into to PT	Growth & Develop	Basic Eval	Critical Think	Teaching & Learning	Ther Ex I	Diversity	Ther Ex 2	Research in PT	Clin Int 1
Program Year.Semester	1.1	1.2	1.2	1.3	1.3	2.1	2.2	3.1	3.1	3.3
Physical Therapist Competencies										
Communication										
LO1: Use verbal communication while speaking in a cultural competent manner with peers.										
Physical Therapist Examination										
LO2: Examine patients be selecting appropriate tests and measures										
Physical Therapist Interventions										
LO3: Provide physical therapy interventions to achieve patient / client goals										

What’s not shown in these sample curriculum maps, but that may be relevant to your program, is that some courses or activities may address multiple developmental levels. For example, in a highly flexible program, a crosslisted elective may be an introductory course for some, but more advanced for others. When that occurs, you may want to mark the same course with both I (for an introductory level) and D (for a developing level) of student learning.

Chapter 3 What happened?

How to measure and verify results



Once your mission, learning outcomes and curriculum maps are in place, you can begin to develop assessments to measure relationships between program activities and student learning. Assessments are tools and processes for gathering data (both qualitative and quantitative). The results are then interpreted to guide action planning and timelines.

Chapter 3 looks specifically at assessment methods and results. You'll explore strategies and techniques for collecting quantitative and qualitative data. After the data has been analyzed and interpreted, your program will summarize the information as the basis for your action plans.

Assessment

An assessment is a tool for gathering systematic evidence of student learning or student success.

Choosing and developing appropriate and relevant assessments to measure student learning can appear overwhelming at first glance. However, it doesn't have to be if you focus on what is meaningful to you and what data you already collect. In this chapter you will learn basic strategies for both selecting and creating assessment for student learning.

The basic strategies and techniques in this chapter include:

- Practical strategies for making choices from among the range of possible assessment methods.
- An examination of two broad types of assessment methods which are commonly used: *direct* and *indirect*.

- Techniques for helping to ensure the data you collect directly relate and are meaningful for judging student learning regarding program outcomes.
- Common sources of data that may already exist and that can be effectively used for program assessment.

Practical strategies for choosing assessments

The selection of a good assessment is essential to getting useful information about student learning. Assessment methods come in many forms; the key considerations are whether you will get clear information that accurately reflects performance on each learning outcome, and whether it is representative of all students in your program.

1. *Measure what matters to you.* For example, if you and your colleagues believe students struggle with writing, and it's an important skill in your field, then assessing writing might be a good choice.
2. *Don't collect everything.* Use your curriculum map to strategically select points in your program at which to gather data. If you're interested in graduating students' abilities, choose an advanced course, a milestone activity, or a professional activity as the place to gather information. If you're interested in seeing developmental stages, choose beginning, intermediate, and advanced points in the program. Select key assignments or review periods that effectively represent the program's learning outcomes rather than collecting information on all assignments.
3. *Use what you have.* Many important activities in your program probably already include some type of assessment process that can be used wholesale or tweaked to enable data collection specific to your program's learning outcomes. For instance, capstone courses, defenses, and clinical/lab experiences already typically include formal or informal assessments. By ensuring that at least some of criteria for those assessments align with the program learning outcomes, the only additional work is to report the results by learning outcome rather than by student.

Direct and indirect assessment methods

With direct assessment methods, a qualified observer evaluates students' performance on a learning outcome. The observer reviews concrete evidence of students' skill, knowledge, values, or beliefs and makes a judgment about the level of performance represented. You probably already use many forms of direct measures in your teaching to assess individual student performance that can also be applied to program-level assessment, such as test scores, rubric scores from class assignments, comments on student portfolios, supervisor ratings on a clinical skills checklist, and so forth (see Appendix B).

In contrast, indirect assessments come in two primary forms. The first is self-assessments, in which the learners make a judgment about the level of their performance based on personal perceptions, such as a survey asking students how well they have mastered the program's learning outcomes. The second is the evaluation of factors that are believed to contribute to or correlate with a learning outcome. For example, attendance at public seminars offered by a department is indirect evidence of professionalization. Attendance

shows that students are aware they should attend, but does not provide direct evidence of what students actually learn about behaving as a professional by attending.

Programs that use a combination of direct and indirect measures obtain a more robust understanding of student learning, often complementing what students know, can do, and believe/value with *why* that is the case.

Some data can be processed in qualitative or quantitative ways. The “better” one is the one that helps to answer your questions about your students’ learning.

Types of Assessment	Quantitative data collection	Qualitative data collection
Exams or surveys (or items and sections)	Means and percentages of correct and/or incorrect responses	Analysis of short answer or essay items for synthesis or reflection skills
Essays, papers, proposals, theses, dissertations	Counts of students who show 95% or greater accuracy with standard formatting (e.g. MLA, APA, Chicago, etc.)	After reading a set of essays or papers, develop a list of categories or ideas that collectively represent student learning related to a program outcome.
Performances (e.g., artistic; in labs, clinics, etc.)	Checklist of performance accuracy	Observation of performance with notes on variations

Example of a direct assessment method

Many activities in your programs are potentially direct assessment methods. The following example repurposes a course assignment as program assessment data by aligning the program’s scoring criteria with their program outcomes.



READING (EDUCATION SPECIALIST CERTIFICATE)

1. Data source is students’ informal written responses to course readings.
2. Data is collected from Education Specialist students across various doctoral level courses in which they are enrolled. (There are no specific courses required of all Ed Specialist students).
3. Data is gathered by course instructors who collect students’ written responses.
4. Data is gathered several times (sometimes, weekly) throughout the semester. Varies by individual course.
5. Course instructor evaluates responses.
6. Criteria used include: Clear expression of ideas; understanding of key concepts; integration of reading to relevant experience (e.g., personal, teaching, supervision, administrative roles/responsibilities, etc.).
7. Evaluation scale is Satisfactory/Unsatisfactory.
8. Criteria for acceptable performance is mark of Satisfactory.
9. Results are reviewed by program faculty, as appropriate.

Regardless of the method chosen, the key is to determine whether the data source can isolate information about a learning outcome from other information. For example, a certification or licensure exam may be the most significant measure of program quality in a particular field, but the way the results are reported may not be specific enough to use for the purposes of program assessment. If only a pass rate is supplied, then the program cannot identify students' areas of strength and weakness by learning outcome in order to make productive changes to the program. If the report provides a drilldown by learning outcome, however, such exams can be highly useful sources of information for program improvement. The same thought process should be applied to any method to evaluate its suitability.

Example of an indirect assessment method

Questionnaires, focus groups, and interviews are the most common indirect assessment methods. In each format, respondents indicate their perceptions of student learning in the program. For example, items such as the following, which link directly to specific learning outcomes for different programs, provide students' self-assessments of their learning:

The following is an example of a student survey:



ELECTRICAL ENGINEERING (BACHELOR OF SCIENCE)

Student Surveys:

This anonymous survey form, developed by the ECE department Undergraduate Committee, will be given to the students who are taking the course during a lecture session near the end of the semester. The completed form will be collected and then returned to the ECE department front desk. The ECE Undergraduate Committee Chair is responsible for tabulating the results in the survey forms at the beginning of the semester that follows. Scores range from 1 to 5, with 5 being the best. The mean and standard deviation of each Learning Objective and Outcome Coverage in the survey form will be computed. Also computed is the percentage response below "Adequate Ability" (a score of 3).

Each instructor was given the results with a score for each item which was flagged as deficient if the score was under 3 (adequate).

Subsequently, the Undergraduate Committee Chair will send the tabulated result to the course instructor and to the ECE Department Chair.

The Department Chair reviews the survey results. If the above-mentioned percentage is less than or equal to 30% for all the Learning Objectives and Outcome Coverage, the course is deemed to successfully pass the survey.

Survey question example:

After the completion of this course, students are expected to be able to meet all of the identified objectives and outcomes listed below. Please select the response that best describes your ability to accomplish the listed task.

OUTCOME COVERAGE	No Ability (1)	Some Ability (2)	Adequate Ability (3)	More than Adequate Ability (4)	High Ability (5)
(a) an ability to apply math, science and engineering knowledge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(e) an ability to identify, formulate, and solve engineering problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Similarly, employers or other external stakeholders may respond to survey questions about their general perceptions of students from a program.

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BUSINESS PROGRAM (*Hypothetical example*)

What are the strengths of the students from the Business program?

In what areas are their skills or knowledge generally weaker than students from other programs?

How well do the students perform the following tasks?

COMMUNICATE WITH DIVERSE PATIENTS:

Very well Well Adequately Poorly

ACCURATELY DIAGNOSE A PROBLEM:

Very well Well Adequately Poorly

[*Note:* These same questions would be direct measures if the employer used a set of criteria to evaluate their university-graduated employees while observing them on the job.]

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Other indirect assessment methods consist of a review of information that may suggest performance on a learning outcome, but that does not directly observe that performance. Use of institutional data (e.g., attendance, repeat class rates, retention rates, time to

graduate) is a common example, but other data sources are also possible. For example, programs may count the number of students that give conference presentations in a particular year as evidence that students have mastered research design skills. While that may be the case, from a count of presentations given, the program does not know the criteria used for selecting conference proposals, the qualifications of the individuals evaluating those proposals, nor even whether the students' presentations included a research design. As such, any inferences about mastery of research design are more indirect than a review of the research design itself would be.

Common sources of assessment data

Almost any assignment given in a course, including a capstone course, can serve as program assessment data if the scoring procedure assigns ratings to each represented learning outcome separately. For example, rather than providing one overall grade on a term paper, it could be scored for multiple program learning outcomes, such as knowledge of course content, writing style, research design, critical thinking, or information literacy. Similarly, rather than one total score on an exam, scores on select questions or sections that correspond to a particular learning outcome can be gathered with minimal effort.

[*Note:* An extensive list of other types of data collection methods can be found in Appendix B.]

Course-based assessments

Course-based assessments have a number of advantages. They typically form part of faculty's normal workload, reflect what is taught in a course and how it is taught, and engender a high level of motivation among students to do their best work. Aligning course- and program-level outcomes makes it possible to select assessments from strategically chosen courses to provide evidence of cumulative learning across the program.

Milestone activities

Essay or dissertation proposals and defenses, supervised research, clinical experiences, internships, and other experiences beyond the classroom also provide ample opportunities to gather evidence of student learning. As with course-based assessments, the key is to identify evaluation tools that isolate information about each pertinent learning outcome from overall performance.

Such milestone activities typically reflect the integration of knowledge and skills, which potentially provides good evidence of the learning achieved by advanced students. However, care must be taken to avoid a bias when only a few students reach these milestones because the data would not accurately reflect the learning of all students who have enrolled in the program.

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National exams

In some disciplines, graduates must pass national certification or licensure exams in order to practice in their field. If the examining organization provides drilled down reports that identify how students performed in each area of the exam that corresponds to program learning outcomes, the scores can be a valuable source of program assessment data.

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Professional activities

Applying for grants, submitting proposals for conferences, publishing papers, securing community partners, auditioning, or engaging in shared governance are examples of professional activities that may be associated with learning outcomes in various disciplines. Some programs track levels of participation in these activities to assess students' professionalization in the field.

Choosing assessment methods that provide useful and accurate information

In choosing an existing assessment method or developing a new one, two kinds of questions are essential to keep in mind at all times:

1. How well do the data collected from the assessment support the claim that students have mastered the learning outcome? In other words, is the assessment *useful*? Is there a direct correspondence between the data collected from the assessment and the performance required for the outcome?
2. How consistently are the data collected from one semester to another or from one form to another? Did enough students participate to provide credible information? In other words, is the assessment *accurate*? The data collected need to be accurate and representative of the students who interact with your program.

Examples of assessment methods

Let's look at an example to begin thinking about these questions.

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In a hypothetical example, faculty choose a multiple-choice final exam as the method to assess one of their program learning outcomes: *Students compare the digestive systems of humans and other primates.*

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Assessment method

In one section of the exam, students respond to the following questions as an assessment of the learning outcome.

- a. Which of the following organs are part of the human digestive systems?
(Select all that apply.)
 - i. Mouth
 - ii. Stomach
 - iii. Intestine
 - iv. Liver
 - v. Esophagus

- b. Which of the following organs are part of the chimpanzee digestive systems?
(Select all that apply.)
 - i. Mouth
 - ii. Stomach
 - iii. Intestine
 - iv. Liver
 - v. Esophagus

Students earn one point for each organ correctly selected, and loses one point for each organ incorrectly selected or not selected if it should have been. Faculty report the scores on these two items to the program’s assessment coordinator as data for this learning outcome. The average score on these questions was a 75%, just meeting the program’s target level of performance. Faculty interpret this score to mean that the program is successful at teaching students to compare the digestive systems of humans and other primates.

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Discussion Are the data useful? How well do the data support the claims?

If students did not know the information elicited in the two multiple choice questions, then clearly they would lack some knowledge related to the respective digestive systems. However, a further consideration is whether the questions required students to compare the two systems, as the learning outcome requires. From these two independent questions, the faculty would not be able to tell whether students knew that the relative length of the small intestines differed, for example. To make a valid inference about this learning outcome, the questions would have to elicit comparisons across digestive systems to match the wording and intent of the outcome..

How accurate and representative are the data?

If more than one instructor gave this exam, it’s important to ascertain that they reported scores for the same questions and for all relevant students, and graded them the same way. With respect to administration, even if student learning is consistent, the results of an assessment could vary if different instructions, resources, time limits, or options were offered on one occasion or to one group versus another. We can’t tell from the information provided whether these conditions were met, but it does raise a number of important questions to consider in deciding whether this data source provides information that is representative and accurate enough to be useful.

Describing assessment methods effectively

Once you've selected an appropriate assessment method, it's important to document it accurately and completely so that you'll have a record of the details when you start to analyze your data. It's also useful when you want to repeat the assessment a year later to see what effect your action plan had on student learning. Responsibilities for assessment may also change hands, and the new person will need to know what has been done in the past.

Several simple questions can guide your description as you enter it in Compliance Assist:

Questions	Rubric scores example	Research proposal example	Employer survey example
What is your data source?	Scores from two rubric sections for Essay 1 in course X	Research project proposals in capstone course	A survey of employers' perceptions of students' skills and knowledge
Who is the data collected from?	All students in course X	Majors	Employers that have hired WSU students in the last three months
How often will the data be gathered? By whom?	Every semester by the course instructor	Every semester by the UG director	Annually by the program director
How often/when will the data be gathered?	On the due date for Essay 1	During students' final semester of coursework	Three months after employment begins
Who will evaluate or score it?	The course instructor	Assessment committee members	Program director
What criteria will be used to evaluate/score it?	Departmental grading rubric for essay	Coherence between research question/goals and research methods/design	Scale: Very satisfactory to Very unsatisfactory
What are the criteria for acceptable performance?	85% of students score a 3 or above in both rubric sections	Feedback on research proposals reveals no or only minor patterns of difficulties in logically articulating a research project	Employers rate student employees as "Satisfactory" or better on all survey items
Who will review the results and when will they review them?	All faculty in the program will discuss results annually in the context of other assessments and with a focus on preceding courses that impact students' preparation	The Undergraduate Curriculum Committee will review the results annually	The program director will present a summary of results to faculty and staff each semester

The two examples of well-defined assessment methods that you saw earlier reflect these questions. The Educational Specialist Certificate in Reading data are the result of a direct assessment while the BS in Electrical Engineering data are from an indirect assessment. The level of detail provided by these programs serves as a record of the process for colleagues when they analyze and interpret the data and when they want to repeat the assessment the following year. Note that the evaluation criteria closely align with each programs' learning outcomes.

Results

Your summary of the data and inferences from the analysis will constitute the results of assessment.

Analyzing and interpreting assessment data

Once your program has selected assessments and administered them, you will then summarize and evaluate the data. An easy starting point is to calculate a sum or average if you have quantitative data, or to identify common themes or trends in qualitative data.

Example of results

A variety of methods can be used for analyzing and interpreting assessment data. Provided below is an example of a result summary that includes notes about the quality of the data:

[Note: Only report de-identified data.]



LANGUAGE LEARNING (MASTER OF ARTS)

- Students' scores averaged 96% for the assessment of Learning Outcome 1.
- This average exceeds the target 85% average for this learning outcome.
- Faculty noted that the grading rubrics did not account for students' ability to summarize published research, skewing the results of the assessment.

We learned that:

- Our students really need to develop two separate skills: **summarizing** research vs. **evaluating** it.
We had lumped these into one learning outcome, and discovered through our first assessment attempt that students performed differently in these areas, and that one was affecting the other.
- We need to improve our grading rubric to get better data next year.

Using assessment data

Collecting data is important but it becomes valuable when used effectively. Basic processes for using data include:

- Evaluating the quality and viability of the data collected
- Summarizing the data through analysis and interpretation

Some questions to consider regarding each of these processes:

Evaluating data

- Did the assessment provide the data you expected in relation to your learning outcome(s)?
- Was the scoring system useful, accurate and consistently applied?
- How well did the data represent the range of students in the program?

Summarizing data

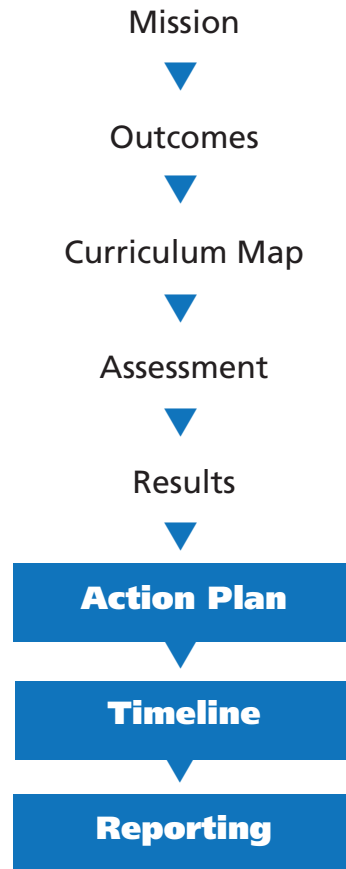
- How many students met your program's expectations?
- In what way(s) did students (not) meet them?
- What successes or concerns arose from the data or the assessment process?
- What are the common themes in the data?

Linking results to outcomes

The ultimate purpose of collecting data is using it to evaluate whether or not the learning outcomes have been achieved by the student group. A direct link between data collection, the results of the analyses and student learning outcomes should be established. In Chapter 4 the process of action planning is explained as a way to ensure that these connections are made and acted upon to improve program assessment and positively impact student learning.

Chapter 4 What now?

Program improvement through action plans and reporting



Once you've collected evidence of student learning and interpreted your results, the next step is to use that information as the basis for action to improve your program. Whether you want to duplicate your strengths in other areas of your program, move some aspect of your program from good to great, or go from under-performing to meeting your standards, your actions should be clearly linked to the data from your assessments.

In Chapter 4 you'll learn about acting on the data to improve student learning, which is the primary goal of assessment after all! Then you'll learn about sharing your program's successes and plans for improvement with your stakeholders.

Action Plan

An action plan is a statement of the concrete actions the program will take based on its assessment data to improve student learning.

Once assessments have been developed and administered, the results collected and the data analyzed, programs select logical actions informed by the data to improve student learning. The goal of assessment is program improvement which results in enhanced student learning. It is about students as a group and how they have progressed to meet the overall learning outcomes of the program. Therefore, deciding how to use the data as part of an ongoing process is essential.

The following steps are helpful for using assessment results:

- Develop an action plan that clearly lays out what will be done based on the data, who will do it and what the expected results will be.
- Create a timeline for implementing the action plan.
- Document efforts through reports, Compliance Assist and other tools of information dissemination.
- “Close the loop” by using the results of assessment to improve programs and improve assessment planning.

How to develop an action plan

At a minimum an action plan will:

- Identify key actions that respond to your assessment results.
- Designate specific individuals or groups responsible for taking those actions.

A major consideration as you develop an action plan is to identify a scope that is achievable. You may want to consider both the one year cycle for WSU reporting and more long term actions that encompass multiple cycles. In this chapter we look at the one year cycle. Actions should respond directly to the data analyses and interpretations. Here are some common action plans to think about based on different kinds of results:

If students met program expectations then you might choose to:

- continue to assess the outcome the following year to get longitudinal data.
- dig deeper into the results to see if all groups of students performed equally well.
- raise the bar so more students have to meet the expectations next year.
- add another assessment to get a more balanced picture.
- revise a rubric to get better data or improve feedback to students.

If students did not meet program expectations then you might choose to:

- revise how a particular concept or skill is addressed across the curriculum or in a particular course.
- increase the number of courses or services developing a particular outcome.
- redesign the assessment used.
- modify what is required vs. elective in your program.
- collaborate with academic advisors to revise the advice they give to students.

Many other action plan options are also possible; the most important thing is to identify an action that derives from your assessment data and to identify a responsible person or group to implement the action. As an aside, some programs incorrectly report a “plan to make a plan” (e.g. having a meeting to discuss and figure out what to do and who will do it), but an action plan should state the actions agreed upon rather than the process for choosing actions.

Examples of action plans

Three examples of action plans are provided below. Each one addresses a different aspect or manner in which action plans can be developed and implemented.

Example 1 succinctly and with bullet points lays out the issues uncovered in the assessment data and then identifies action steps to be taken that will address the issues.

Example 1



BUSINESS ADMINISTRATION (MASTER)

Issues:

- Students do participate in team work to solve problems in the classroom. However, their teamwork is not currently being evaluated.
- A lack of clarity and consistency when assessing the same learning goals by different instructors

Feedback and Actions:

- Increase the coverage of collaborative skills/teamwork from 1 to 3 [in the curriculum map]
- Design a set of metrics to assess student performance in collaborative skills/teamwork
- Course coordinators need to ensure the same learning goal is understood and assessed consistently across different sections of the course by different instructors

Example 2 uses a narrative format and discusses three areas for change. In the first area apparently improvements have been made but further possible revisions are also addressed. This action plan provides a great example of the incremental and ongoing nature of program improvement.

Example 2



BIOMEDICAL ENGINEERING (BACHELOR OF SCIENCE)

BME 3910 – Based on the results from the Bone Plate and Molecular Modeling Labs, the assignment setup is better, however, there needs to be more connection to the technical information to the BME faculty members. The lectures for each associated lab was performed by the tenure track faculty of the associated department but additional background needs to be given for students to better understand the lab concepts. Based on the assessment from the Blood Flow CFD Lab, there is still lacking some understanding of how to use MATLAB to model pulsatile flow, so more instruction will need to be provided in that area. Also, the structure of the course was modified to incorporate more modeling and simulation into the course and to devote more time to developing a deeper understanding of how the experimental, analytical and computational solution methods can be used together to address engineering questions.

Example 3 also uses a narrative to explain why, even though students met target criterion, some may still struggle with aspects of the learning outcome.

Example 3



BILINGUAL/BICULTURAL EDUCATION AND ESL (BRIDGE GRADUATE CERTIFICATES), AND FOREIGN LANGUAGES (MASTER OF EDUCATION)

Though all students met the target criterion, it was clear that the students who lost points on this indicator struggled with indicator #2, the provision of examples with robust details. 3 out of the 4 students who struggled were international students indicating that there may be cultural and/or linguistic differences in how information is defined, described and presented. As a result, for 2016–2017, the instructor intends to provide additional guidance with regards to cross-cultural communication and instructional decision making. This will help teacher candidates consider how they navigate their task, role and audience as suggested by WIDA development standards.

Timeline

The timeline is a declaration of the deadline for each element of the action plan.

The timeline is a declaration of the deadline for each element of the action plan; the details will reflect the complexity or simplicity of the actions to be taken. Some actions may have multiple steps which must proceed in a linear fashion and can be laid out by week or month. Other actions may require only one step or one activity and can be acted upon and completed quickly. All of the activities together will make up the timeline.

Examples of timelines

Three examples of timelines with specific actions and completion dates are provided below:



EARLY CHILDHOOD EDUCATION (MASTER OF EDUCATION)

Dr. Mark Larson will implement Action Plan steps in ELE 6020 Fall 2016.



BILINGUAL/BICULTURAL EDUCATION AND ESL (BRIDGE GRADUATE CERTIFICATES), AND FOREIGN LANGUAGES (MASTER OF EDUCATION)

In-class instructional modifications will be implemented in the fall semester of 2016.



ART EDUCATION (MASTER OF EDUCATION)

Modifications to the internship evaluation form will be completed by August 2016. The results of the evaluations will be used to improve the instruction and supervision of art therapy students by December 2016.

Reporting

Reporting to stakeholders is a description of how and when you will communicate your assessment efforts to students and other stakeholders.

An additional aspect of using assessment results is sharing them with others. Institutional requirements for documenting and reporting are discussed below. Reporting is an opportunity to share your findings with students, other faculty, community members and a variety of additional stakeholders through reports, website access, videos and other communication venues.

Public reporting

Once your data collection, analysis, and action planning are complete, it's time to think about whom to share the process and conclusions with. The program or unit may want to create different types of reports or explanations based upon the audience who will be viewing the results. For example, a short video presentation with a highlight of key results and actions might be most effective for students whereas staff might want to see more detailed information and conclusions in a written report directly related to the part of the program that most affects their job duties.

At a minimum programs will want to post their results on the program, department or unit website. What can be included in this document are ideas related to:

- What was assessed
- How it was assessed
- The results and conclusions
- The action plan for the future to improve the program

Examples of public reports



Bilingual/Bicultural Education: <http://coe.wayne.edu/ted/bilingual/>



Translational Neuroscience: <http://www.tnp.wayne.edu/>

Institutional reporting with Compliance Assist

The assessment process must be documented annually in Compliance Assist. Compliance Assist is the online website for gathering and reporting assessment data on all programs at Wayne State University. The Director of Assessment can be contacted for access and training. In addition, printable Word versions/templates of the questions in Compliance Assist (mission, learning outcomes, assessments and curriculum map) are available for programs to draft responses before entering them.

Each year, in the Fall some information (mission, learning outcomes, curriculum maps, methods, reporting plan) in Compliance Assist is rolled over to the new year. Programs should check their rollovers carefully to be certain information has been accurately transferred and to edit those items with any desired updates or changes. Also each year, new results, action plans, and timelines are needed in Compliance Assist. What should be documented and the process for doing so are available on the WSU assessment website.

The process, timeline and requirements for the current academic year (Fall, Winter and the following Fall) are detailed. The [progress of programs](#) in turning in required information can also be obtained.

Improving the quality of assessment plans

WSU's University Assessment Council uses an assessment plan feedback rubric to examine the quality of program assessment plans.

[*Note: The rubric evaluation is not of the quality of a program itself, but rather an evaluation of the program's assessment plan.*]

Feedback rubric

The [WSU feedback rubric](#) was developed and designed to be specifically applicable to programs at WSU. The goal of the feedback rubric is to provide programs with useful feedback about the strengths and weaknesses of their assessment plan that will enable them to implement improvements.

The assessment plan feedback rubric is a tool for identifying the presence and quality of the pieces of a program's assessment plan individually (the mission statement, learning outcomes, curriculum map, and assessments) as well as together. A complete guide to [using the rubric for evaluation](#) can be found in video, Power Point and pdf versions.

Each year 10% of programs are evaluated using this rubric and reports are provided to each program evaluated. However, the rubric can be used as a guide by all programs for examining the effectiveness and quality of their assessment plans.

What to do when changes have been made

When programs make changes to learning outcomes, assessment measures or other parts of the assessment plan then future action plans will include examining whether or not these changes made a difference. What was the effect of the change? Did it improve student learning?

Assessment Goal

*Ultimately the goal of program assessment is simple:
Did assessment improve student learning?*

Appendix A

Assessment resources at Wayne State University

WSU Assessment Website

Wayne State's [assessment website](#) provides explanations, video tutorials, templates, and models of assessment plans, as well as instructions for using our online assessment reporting system, Compliance Assist.

The website also includes a semester-by-semester timeline with deadlines for assessment activities and a progress report showing each College, School, or Division's progress toward the year's assessment goals.

WSU Director of Assessment

The director's primary role is to provide expertise in assessment to complement programs' disciplinary expertise in designing assessment plans that will return useful information for program improvement. The director offers general and discipline-specific assessment workshops, presentations, individual and group consultations, feedback, and resources such as the materials at assessment.wayne.edu and sample rubrics to support to all Wayne State programs.

In addition, the director co-chairs the [University Assessment Council](#).

Office for Teaching and Learning (OTL)

The [Office for Teaching and Learning](#) supports the professional development of Wayne State's full-time, part-time, and graduate student faculty in achieving excellence in teaching, including in the area of assessment. The OTL offers workshops, events, consultations, instructional design assistance, and other services that enhance faculty members' knowledge and skills.

The OTL's [Faculty Teaching Travel Grant](#) also encourages professional development by supporting faculty presenting at or participating in assessment-related conferences and workshops.

University Assessment Council

The [University Assessment Council](#)'s role is to support the development of a culture of assessment at Wayne State. [University Assessment Council members](#) are appointed by each School, College and the Provost's office (for Student Services).

Appendix A

Assessment resources at Wayne State University (cont.)

**College, School, and
Department assessment
committees**

Each College, School, and department was asked to identify a new or existing committee to address program assessment within its own structures. The primary role of these committees is to provide support and feedback to programs to help them improve their assessment plans, monitor their progress to ensure that the evidence collected is used for program improvement, and communicate assessment information to colleagues and to the University Assessment Council.

**Research design and
Analysis Consulting**

Wayne State's Research Design and Analysis (RDA) unit offers consultation to campus members interested in help with research design or statistical analysis of data. While program assessment methods and analyses do not require statistical analyses, programs interested in pursuing this option can draw on the expert assistance of RDA's consultants.

Appendix B

Examples of performance data sources

- Tests/exams or select test questions/sections – internal, course-based, program-based
- Tests/exams or subscores – external (certification, board, licensure)
- Practicals (hands-on exams in health sciences)
- Comprehensive or qualifying exams
- Case study analysis
- Improvement plan project
- Financial analysis project
- Lesson plan/ Lesson plan implementation/ Lesson plan annotations
- Needs assessment
- E-portfolio
- Presentations (in class, at conferences; oral, poster, PowerPoint, etc.)
- Research/Article critique paper
- Research paper
- Informal (journal-style) responses to readings
- Clinical performance
- Annotated bibliography
- Completion of CITI modules on human subjects research
- Discussion board posts
- Team project
- Website development
- Proposals (essay, dissertation, conference)
- Essays, theses, dissertations
- Publications
- Student Evaluations of Teaching (of students in programs in which teaching is one of the program learning outcomes)
- Class observations (of students in programs in which teaching is one of the program learning outcomes)
- Simulations
- Peer evaluations (of teamwork)
- Technology use (e.g., PowerPoint, statistics software)
- Labs and lab reports
- Designs (computer, systems, artistic, prototypes)
- Defenses (essay, thesis, dissertation)
- Surveys (of students, faculty, employers)
- Applications for inventions, patents, and grants
- Instructor's report (written comments on trends in and circumstances affecting students' performance)
- Individual Development Plans (IDPs) / annual reviews
- Selected homework assignments
- Reports/documentation formats specific to a discipline
- Reflection papers
- Performance (e.g., music, dance)
- Creative works (e.g., musical composition, creative writing, painting, sculpture)
- Interviews
- Class participation (foreign languages)
- Self-reporting of extracurricular activities (e.g., community engagement, internships, conference attendance, leadership roles)