THE LEADER IN GLOBAL EDUCATION

FAIRLEIGH DICKINSON UNIVERSITY

Student Learning Outcomes Assessment Guide

For Full- and Part-Time Faculty

Part 2: Program Assessment

The content of this document is presented to assist Fairleigh Dickinson University's faculty with student learning outcomes assessment. This is a working document.

Refer to www.fdu.edu/outcomes for updates as well as additional information.

Guide provided by the University Provost's Learning Outcomes Assessment Advisory Committee

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Introduction

The purpose of this document is to provide guidance to FDU faculty on planning and conducting assessments of degree programs. This guide was created in response to faculty request for concrete steps that they can take while planning and conducting program assessments.

This guide is complementary to an earlier guide distributed by the Provost's Learning Outcomes Assessment Advisory Committee in 2009-10. The earlier Guide presents important information concerning the assessment cycle, Middle States standards that guide assessment, the common vocabulary for assessment in use at FDU, and the interrelationships expected in University, program, and course-level outcomes. Because the current guide assumes some familiarity with all of the above, it should be considered as a continuation of that document.

The earlier guide also provides valuable guidance in designing assessments at the **course** level. The current guide directly addresses assessments at the **degree program** level.

This guide is also intended to help clarify expectations held by the Middle States Commission on Higher Education (MSCHE) concerning student learning outcomes assessment, as described in *Characteristics of Excellence in Higher Education* (2002). *Characteristics of Excellence* is the MSCHE standard book for higher education, and as such should be familiar to all those developing or assessing degree programs.

Wherever possible, the current document cites specific pages in *Characteristics of Excellence* to support the claims made. In cases where *Characteristics of Excellence* does not provide explicit guidance, this is noted, and other credible sources are used instead. In particular, this document draws heavily on the Middle States (2003) publication *Student Learning Assessment: Options and Resources*, and Linda Suskie's (2009) seminal work on learning outcomes assessment.

As is the case with the earlier document, the current guide will be updated periodically based on faculty feedback and current trends.

How to use this document

Conducting an assessment of a degree program is a very straightforward process. Faculty members in the program:

- ★ establish the knowledge, skills, abilities, and dispositions that their graduates should acquire while in the program;
- ★ determine if students do indeed learn what is required; and then
- ★ make changes to the program to improve student learning.

Most academic programs engage in this kind of **self-reflection** as part of their normal routine. An assessment plan simply formalizes and records this self-reflection. However, every academic program can consider changes to help make this self-reflection more meaningful and yield more useful information for informing change.

This document is designed to help academic programs at Fairleigh Dickinson University collect informative and useful data, using assessment tools that can be incorporated into the daily life of an academic program. Assessment should be simple for programs to conduct, and yield data that faculty members trust enough to make changes based upon it.

While assessment is a conceptually simple process, it is recommended that you take your time as you work your way through this document. Each section could be the topic for a department meeting or academic program meeting. Faculty members should work together to design a plan and implement it.

Each section contains a tutorial on one step of the assessment process, starting with framing or revising learning outcomes. While this process is presented in what appears to be a very linear order, it is likely that each step in the process will reveal changes that need to be made in an earlier step. For example, as a program works through a curriculum map, faculty members may decide that a learning outcome needs to be added, or one should be dropped.

In most cases, one or two worksheets follow the section. In many cases the worksheets will not provide you with sufficient room to complete the allotted task. These worksheets simply serve as a way to clarify your thoughts as you proceed. You are of course welcome to use any format that is meaningful to you.

Each section also includes a rubric for reflecting on the program's progress. The rubrics are intended to help programs critically evaluate their assessment projects to determine if they could be improved. The rubrics will never be used by administration, nor will they be used to rank programs or departments against each other. You are encouraged to use the rubrics to assess your assessments, and to be honest in your appraisal of your efforts.

If you feel that anything in this guide does not seem to apply to your program, please communicate this to the Office of Educational Resources and Assessment or your representative on the Provost's Learning Outcomes Assessment Advisory Committee. This document and all of the worksheets and rubrics should be considered works in progress, and every effort will be made to make them as useful to you as possible.

1: Writing Academic Program Learning Outcomes

Middle States has clearly and unambiguously stated that all accredited institutions of higher learning are expected to possess clearly articulated statements of expected student learning outcomes, at all levels (institution, degree/program, course), and for all degree programs.

Learning outcomes help instructors plan their syllabi and understand which goals are critical and which are of secondary importance. Learning outcomes help students prioritize their personal learning goals, make sure they are meeting all learning outcomes, and understand what constitutes excellence in their degree programs.

Learning outcomes are also helpful to institutions, by making sure that institutional values and general education goals are incorporated into degree programs. Clear institutional learning outcomes help ensure that the institution assesses itself on measures that are meaningful to the mission of the institution, rather than on those used by external assessors. The Middle States (2003) handbook, *Student Learning Assessment*, provides a number of additional benefits to having clearly framed learning outcomes on pages 10 and 11.

The following section is the longest and most detailed of any of the sections in this guide. Because of the length and level of detail, it may seem that writing learning outcomes is a daunting task. However, it should not be. This section of the guide presents a great deal of detail because a good assessment plan depends on starting with good learning outcomes.

When writing program learning outcomes, the most important question to address is "In general, what are the most important things a student gains from this field of study?" The answer to this question is usually somewhat obvious, and will be a list of the unique knowledge, skills, and abilities required of professionals in the discipline. However, it is a good idea to dig a bit deeper and uncover other characteristics that are expected of program graduates.

For example, learning outcomes for a science program will usually include knowledge of relevant theory, methodology, and laboratory skills. However, scientists often need to present their work to the general public in understandable, non-technical terms. Science programs may consider whether the ability to communicate in this fashion should be an important learning outcome.

Page 22 in *Student Learning Assessment* (MSCHE, 2003) provides a list of probing questions to help uncover all important learning outcomes in an academic program, some of which may not be immediately obvious.

It is also good to consider the various learning domains represented in Bloom's Taxonomy (1956). A program may include learning outcomes from the cognitive (thinking), affective (emotional or attitudinal), or psychomotor (physical skill) domains; and may include learning outcomes at varying levels of complexity. For example, in the cognitive domain outcomes vary from content knowledge (considered a lower level domain) to analysis, synthesis, and evaluation. Pages 14-16 in Part 1 of this guide provide guidance on crafting learning outcomes using Bloom's Taxonomy of Cognitive Skills.

Learning outcomes are typically written using a standard format. Each learning outcome will be written **from the student's point of view**, and will express a specific ability that the student will gain as a result of an educational experience (lesson, course, academic program, or other learning experience). The format is usually a variant of "at the end of (this unit, this class, this program) the student (or the graduate) will be able to (do something)." This format is not a mere formality, but includes a number of very helpful concepts. All of these concepts are included in Middle States' description of learning outcomes.

Middle States describes learning outcomes as "**clearly articulated written statements, expressed in observable terms, of . . . the knowledge, skills, and competencies that students are expected to exhibit upon successful completion of a course, academic program, co-curricular program, general education requirement, or other specific set of experiences**, as discussed under Standard 11 (Educational Offerings)." (Characteristics of Excellence, p. 63) Each phrase in this statement points to some element of well-written learning outcomes, as described on the next page.

- **Clearly articulated -** This means that learning outcomes should use precise, unambiguous language. To be completely unambiguous, outcomes should be written with very specific language; but the level of specificity used in outcomes may vary quite a bit in different disciplines and at different levels of analysis. For example, program learning outcomes will be stated in more general terms than course learning outcomes.

  The most important point to consider is whether faculty members in the program agree on the meaning of each outcome. If they do not, then they will not agree when students have or have not achieved that outcome. Yet it is also possible to be too specific. Outcomes should be applicable to a variety of situations; e.g. they should be applicable to a variety of models of equipment or software, textbooks, and other learning scenarios. Finding the right balance may take time and experience, and is likely to require periodic revision of the outcomes.

- **Written statements -** This means that learning outcomes should always be phrased as complete sentences. Minor variations are acceptable. For example, when providing a list of learning outcomes, it is acceptable to use a single starting phrase such as "Graduates of this program will be able to:" and then list the outcomes that would each create a complete sentence when added to this phrase. However, lists of topics to be covered would generally not be considered "written statements."

- **Expressed in observable terms -** In the language of assessment, "observable" usually means "behavioral." In other words, instead of referring to internal states (such as "understand," or "know"), consider the evidence that would required to convince a knowledgeable person that a student has a sufficient level of knowledge or understanding. For example, a student who "understands" a concept should be able to explain it. A student who "knows" a specific artistic technique should be able to demonstrate this technique and use it in his or her work.

Clearly articulated written statements expressed in observable terms…

- ★ **Of the knowledge, skills, and competencies –** This phrase means that the outcomes should cover more than just content knowledge. All degree programs also expect students to develop certain skills, competencies, attitudes, and habits of mind. This phrase also implies that the learning outcomes should address **all** of the knowledge, skills, and competencies expected of students in the program.
- ★ **That students -** This phrase indicates that the subject of any statement of learning outcomes must always be the student. Instead of phrasing outcomes as "This program will cover," outcomes should be phrased as "Students will be able to."
- ★ **Are expected to exhibit upon successful completion –** This phrase implies that **all** students who have completed an educational sequence must be able to demonstrate these outcomes. If the ability is not expected of all students, then it should not be included in the outcomes. The word "exhibit" reiterates that outcomes should be expressed in observable terms.

Bloom's Terminology (observable terms)

analyze

appreciate attribute

calculate compose compute

construct create critique defend

design develop diagnose dramatize evaluate

examine illustrate integrate investigate

perform produce question

solve utilize

value

… of the knowledge, skills, and competencies that students are expected to exhibit upon successful completion…

★ **Of a course, academic program, co-curricular program, general education requirement, or other specific set of experiences** – This phrase reiterates that Middle States expects learning outcomes to exist at all levels of the university, and for all sets of experiences where learning is intended to take place.

Putting these concepts together, here are some examples of well-written learning outcomes. These examples are all taken from Suskie (2009).

- Graduates of this program will be able to use voice, movement, and understanding of dramatic character and situation to affect an audience.
- At the completion of this class, students will be able to design an experiment to test a chemical hypothesis or theory.
- Graduates of this program will be able to apply basic problem-solving skills along with health care financial management knowledge to develop recommendations related to the financial issues confronted by a health care organization.

All of these examples are complete sentences, with the student (or "graduates") as the subject. All are expressed in observable terms. All are reasonably clear, bearing in mind that the level of specificity differs by discipline.

In addition to these guidelines, Middle States expects assessment to be sustained indefinitely, and each outcome to be assessed every two to three years. It is therefore very important to keep the list of outcomes to a manageable number. It may take time to find the right balance between specificity of outcomes, sufficient coverage of the abilities students are expected to gain, and sustainability. Outcomes may need to be revised periodically as this balance is found.

> … of a course, academic program, co-curricular program, general education requirement, or other specific set of experiences

How many learning outcomes is enough?

It is impossible to provide a single answer to the question, **"how many learning outcomes is enough?"** Some programs will have only five or six outcomes. Others may have disciplinary accrediting bodies that require assessment of dozens of outcomes, many of which will be most appropriately framed as course outcomes rather than program outcomes. As a general rule, start with the goal of sustainability in mind. **The most important expectation that Middle States has concerning assessment is that we actually do it, and sustain the practice.**

With all of these considerations in mind, take some time to write or revise the program's learning outcomes. Revising program outcomes would be a great activity to conduct at a program or department meeting.

Program Learning Outcomes excerpted from the B.S. Computer Science Program, University College*

Graduates will be able to:

- ★ Analyze a problem, and identify and define the computing requirements appropriate to its solution.
- ★ Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- ★ Communicate effectively with a range of audiences.
- ★ Analyze the local and global impact of computing on individuals, organizations, and society.
- ★ Use current techniques, skills, and tools necessary for computing practice.
- ★ Apply design and development principles in the construction of software systems of varying complexity.

** Program Learning Outcomes developed by the Computing Accreditation Commission (CAC) of ABET (Accreditation organization for applied science, computing, engineering, and engineering technology). Permission granted from University College, 04/26/2013.*

Worksheet 1: Probe Questions for Developing Learning Outcomes Developed by Prof. C. Ewart, Department of Psychology, Syracuse University, 1998
In general, what are the most important things a student gains from your field of study?
What qualities and capabilities do you strive to foster in your students?
What is the most important knowledge that your students acquire from your field of study or from working with you?
How does your field of study or your work change the way students view themselves?
In what ways does your field of study or what you do contribute to a student's well being?
How does your field or what you do change the way a student looks at the world?
What does your field of study or what you do contribute to the well being of society at large?
How do people in this area of study differ from those in other areas (knowledge, skills, and/or values)?
How do we know the extent to which students are learning what we hope from our field of study?
How do we use information about student learning and development to enhance student learning?

Worksheet 2: Program Outcomes for _____ **Academic Year _____**
Phrase your learning outcomes using the standard format, "Students who graduate from Fairleigh Dickinson University with a (degree) in (discipline) will be able to (outcome)."

Rubric 1: Reflect on the Outcomes

The rubric below is designed to help you determine if the outcomes meet Middle States expectations. As you complete the rubric, you may choose to revise the learning outcomes in order to better meet the standards. If you can honestly give the program's outcomes a three or better on all of the indicators, pat yourself on the back and continue on to the next section. If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	Developing	Good	Exemplary	Score
	1	2	3	4	
Outcomes are expressed as complete sentences, with the student as the subject	Outcomes are a list of skills, topic areas, or the like	Outcomes are expressed from the point of view of coverage rather than student learning	Outcomes are expressed from the student's point of view, but are not complete sentences	Outcomes are all expressed as complete sentences, with the student as the subject	
Behavioral verbs are employed in the outcomes (e.g. "explain" or "analyze" rather than "know" or "understand")	No verbs are present in any outcomes	Verbs that refer to internal states are used for all outcomes	Behavioral verbs are used for some outcomes	Behavioral verbs are used for all outcomes	
Outcomes are sufficiently clear for assessors to agree on their meaning, but are broad enough to apply to a variety of educational situations	Content, skills, or attitudes are presented in language that is too broad or vague to be meaningful	Most outcomes are either too vague to be meaningful, or excessively specific	Most outcomes are sufficiently clear for assessors to agree on their meaning, but some are too vague or excessively specific	Outcomes are sufficiently clear for assessors to agree on their meaning, but are broad enough to apply to a variety of educational situations	
The number of outcomes is sufficient to address all of the content knowledge, skills, and abilities required of program graduates.	The outcomes address only one learning domain, e.g. content knowledge	The outcomes address several learning domains, but significant elements are missing from the knowledge, skills, and abilities listed in the learning outcomes.	Only minor elements are missing from the knowledge, skills and abilities listed in the learning outcomes.	The outcomes are sufficient to address all of the content knowledge, skills, and abilities required of program graduates.	
The number of outcomes is reasonably sustainable, and can comfortably be assessed every two to three years	There are too many outcomes to be assessed every two to three years. Some will certainly be missed.	There are many outcomes, which could only be assessed with difficulty every two to three years. Some outcomes may not get sufficient attention.	While this number of outcomes can probably be assessed every two to three years, the program should consider trimming some in order to ensure sustainability.	The number of outcomes is clearly sustainable, and can comfortably be assessed every two to three years	

2: Aligning Program Outcomes to University Outcomes

Middle States gives guidance on how outcomes should be written, but clearly requires that outcomes should be:

- ★ appropriately integrated with one another;
- ★ consonant with the institution's mission; and
- ★ consonant with the standards of higher education and of the relevant disciplines
  (*Characteristics of Excellence*, p. 66)

"Appropriately integrated with one another" means (among other things that will be discussed in other modules) that program learning outcomes should be explicitly linked to institution level learning outcomes where appropriate. In most cases, it is unlikely that the program's outcomes will link to all nine university learning outcomes. However, Middle States expects that all disciplines should include at least a few of these outcomes.

While [general education] skills are often addressed within a general education curriculum, they must often be further addressed within degree or certificate programs so that students may become proficient in these skills as they are applied within a particular field of study. (*Characteristics of Excellence,* p. 42)

Furthermore, **all program outcomes should include discipline-specific information literacy and higher-order thinking skills such as critical thinking**, which are the cornerstones of any university education. Middle States explicitly indicates that information literacy must be embedded in all disciplines.

Several skills, collectively referred to as "information literacy," apply to all disciplines in an institution's curricula. These skills relate to a student's competency in acquiring and processing information in the search for understanding, whether that information is sought in or through the facilities of a library, through practica, as a result of field experiments, by communications with experts in professional communities, or by other means. Therefore, ***information literacy is an essential component of any educational program at the graduate or undergraduate levels****. (Characteristics of Excellence, p. 42)*

Part 1 of this guide also describes these expectations and provides a complete list of the original eightUniversity level learning outcomes, on pages 7 through 11.

Middle States also explicitly requires that technological literacy be embedded in all disciplines:

Closely tied to information literacy is the need for technological competency at all levels within an institution and its curricula. Higher education has new information sources and technologies that supplement its print-based knowledge resources and present new challenges for teachers and learners who must learn how to develop and use general or discipline-specific technologies to identify, retrieve, and apply relevant information. Therefore, institutions should provide both students and instructors with the knowledge, skills, and tools needed to use the information, new technology, and media for their studies, teaching, or research. (Characteristics of Excellence, p. 42)

Finally, Middle States requires that other general education competencies be considered, and reinforced in degree programs as appropriate.

In addition to information literacy and technological competency, the institution's curricula should be designed so that students acquire and demonstrate college-level proficiency in general education and essential skills, including at least oral and written communication, scientific and quantitative reasoning, critical analysis and reasoning, and technological competency (see Standard 12: General Education). While these skills are often addressed within a general education curriculum, they must often be further addressed within degree or certificate programs so that students may become proficient in these skills as they are applied within a particular field of study. (Characteristics of Excellence, p. 42)

Worksheet 3: Aligning Program Outcomes to University Outcomes

With Middle States expectations in mind, for each of the program outcomes developed in Section 1, please use the worksheet on the next page to indicate the extent to which each of the nine University Learning Outcomes is addressed. Indicate relevance of each University Outcome to each program outcome as follows:

0 This university learning outcome is not relevant to this program learning outcome.
1 This university learning outcome is relevant to this program outcome, but the linkage is not direct
2 Closely Linked – This university learning outcome is closely linked to this program learning outcome

	Fairleigh Dickinson University General Education Outcomes								
Program Outcomes for _____	Written Communication	Oral Communication	Information Literacy	Technology Literacy	Quantitative Literacy	Global Understanding	Cultural Understanding	Critical Thinking	Scientific Analysis

Rubric 2: Reflect on Alignment of Programs with University Outcomes

The rubric below is designed to help you determine if the program's outcomes meet Middle States expectations concerning alignment with institutional outcomes. As you complete the rubric, you may choose to revise the learning outcomes in order to better meet the standards. If you can honestly give these outcomes a three or better on all of the indicators, pat yourself on the back and continue on to the next section. If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	Developing	Good	Exemplary	Score
	1	2	3	4	
Outcomes are appropriately and explicitly linked to the University Learning Outcomes	No outcomes can be linked to the University Learning Outcomes	Some outcomes appear relevant to the University Learning Outcomes, but this linkage has not been made explicit OR the provided linkage is questionable and requires further elaboration	The University Learning Outcomes are explicitly linked to program outcomes, but some relevant outcomes are not included	All relevant University Learning Outcomes are explicitly linked to appropriate program outcomes.	
Information Literacy has been appropriately linked to at least one of the program learning outcomes	Information literacy cannot be linked to any of the provided outcomes	No outcome has been linked to information literacy, but information literacy could be incorporated into one or more outcomes with some reworking OR the provided linkage is questionable and requires further elaboration	No program outcome has been linked to information literacy, but at least one outcome has clear relevance to information literacy	Information Literacy has been appropriately linked to at least one of the program learning outcomes	
Technology Literacy has been appropriately linked to at least one of the program learning outcomes	Technology literacy cannot be linked to any of the provided outcomes	No outcome has been linked to technology literacy, but technology literacy could be incorporated into one or more outcomes with some reworking OR the provided linkage is questionable and requires further elaboration	No program outcome has been linked to technology literacy, but at least one outcome has clear relevance to technology literacy	Technology Literacy has been appropriately linked to at least one of the program learning outcomes	
Outcomes explicitly include other higher-order thinking skills such as application, analysis, problem-solving, decision-making, synthesis, and creativity	No higher-order thinking skills are included in the outcomes	Some higher-order thinking skills are implicit in the outcomes, but have not been made explicit OR the provided linkage is questionable and requires further elaboration	Some higher order thinking skills are explicitly included in the outcomes, but could be emphasized more	Higher-order thinking skills are emphasized in the outcomes as appropriate to the level of study	

3: Developing a Curriculum Map

A curriculum map is a simple tool that makes explicit which program outcomes are taught in which courses or other learning activities, and at what level. It is simply a table or spreadsheet with the program's required courses, required distribution options, or other required activities in each row. Each column represents a program outcome. Each cell of the table indicates if a given program outcome is taught in that class.

In the simplest form of curriculum map, the letter "X" in the cell indicates that an outcome is taught. More sophisticated curriculum maps indicate whether an outcome is introduced for the first time (letter "I"); reinforced (letter "R"); or mastered (letter "M"). If the program allows a choice among alternatives for some classes, these choices can appear as a cluster on one row of the table.

Curriculum maps clarify the overall design of the program, and help identify gaps in the curriculum. For example, the map might reveal that an important program outcome is not included in any required classes, or only addressed once at the introductory level. Such a finding may indicate that the outcome should be dropped, or it may indicate that the curriculum or some key courses need revision. Some curriculum maps show that every outcome is addressed in every class. While some curricula may be intentionally designed this way, such a finding can sometimes indicate that the outcomes have been written at too broad a level. Conversely, the map may reveal that some required courses do not seem to serve the program's learning outcomes. Such a finding may indicate that this course should not be required or that revision is necessary, or it may indicate that the learning outcomes are not complete. Middle States requires that any required course have a clear connection to a program's learning outcomes.

Appropriate interrelationships among institutional, program-level, and course-level learning outcomes should be evident. ***For example, a course required within a program should help students achieve at least one of the program's key learning outcomes and should have stated course-level learning outcomes to this effect.*** *Some learning outcomes may be repeated across courses or programs, and some institutional or program level learning outcomes may be syntheses of multiple course level learning outcomes. (Characteristics of Excellence, p. 41)*

Curriculum maps also help in designing assessment plans. If students are only assessed on an outcome once, assessment should occur at the most advanced level. Students may also be assessed at an introductory level and senior level in order to demonstrate development throughout the program. After a curriculum map is created, it is usually straightforward to determine where assessment can and should take place. Assessments are indicated on the map with the letter "A."

The simplified example below shows a curriculum map for a program in the biological sciences. This program assesses each outcome only once, at the mastery level.

Degrees of Mastery

I = Introduced

R = Reinforced

M = Mastered

A = Assessed

Courses	Student Learning Outcomes			
	Apply the scientific method	**Develop laboratory techniques**	**Diagram and explain major cellular processes**	**Describe careers and job opportunities in biological sciences**
BIOL 101	I	I		I
BIOL 202	R	R	I	
BIOL 303 or BIOL 305	R	M, A	R	
BIOL 404	M, A		M, A	R
Other: Exit interview				A

Worksheet 4: Curriculum Map

Create a curriculum map for your academic program, with input from all faculty members in the program. This would be an excellent activity to conduct at a department or program meeting. The assessment office can facilitate such a meeting on request.

Program: _____

Based on curriculum in effect in academic year(s) 20_____ through 20_____

	Student Learning Outcomes					
Courses						

Rubric 3: Reflect on Curriculum Map

The rubric below is designed to help you determine if the curriculum map reveals areas of needed change within the program curriculum. A change in curriculum can be a significant undertaking, so consider alternatives carefully. Revision of key courses or revision of learning outcomes may be a good first step if the map reveals any problem areas.

If you can honestly give the program's curriculum map a three or better, pat yourself on the back and continue on to the next section. If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	**Developing**	**Good**	**Exemplary**	**Score**
	1	**2**	**3**	**4**	
Curriculum Map	The curriculum map reveals gaps in the program. One or more outcomes are not addressed in any course or educational activity.	The curriculum map reveals linkages between program outcomes and opportunities to achieve those outcomes. All outcomes are addressed in at least one class, but one or more required courses or activities are not aligned with program outcomes.	The curriculum map reveals a solid program with clear linkages between program outcomes and opportunities to achieve those outcomes. All required courses are relevant to one or more program outcomes. Some outcomes could be reinforced more frequently in the curriculum.	The curriculum map reveals a well-designed program with clear linkages between program outcomes and opportunities to achieve those outcomes. All required courses are relevant to one or more program outcomes. Learning for all outcomes is reinforced in a variety of contexts.	

4: Planning an assessment timeline

Once the curriculum map has been created, it will be clear which courses are the best candidates for an assessment program. Typically, an outcome will be assessed in the highest-level class in which that outcome appears in the curriculum. Sometimes programs will also assess students in earlier stages of the program to identify problems that may be emerging. However, it is not required to conduct "pre-post" or "value added" assessments, in which a program demonstrates that students have developed proficiency throughout their course of study. Value added assessments can certainly be done if the program finds them useful, but Middle States is very clear that their expectations concern assessment of **outcomes,** i.e. whether or not students can be demonstrated to have met expectations by the time they graduate.

Middle States does not provide strict guidelines concerning how frequently program outcomes should be assessed. However, they are very clear that assessment should be part of daily activities rather than an event or series of events. Most Middle States institutions have settled on a two to three year assessment cycle to demonstrate ongoing assessment.

> Assessment is not an event but a process that is an integral part of the life of the institution, and an institution should be able to provide evidence that the assessment of student learning outcomes and use of results is an ongoing institutional activity. (p. 64)

Middle States is also very clear that assessment must be **"carefully planned, and organized, systematic, and sustained."** Middle States describes these expectations more fully as:

Planned, organized, systematic, and sustained

Planned, organized, systematic, and sustained

> **Planned** assessment processes that clearly and purposefully correspond to learning outcomes that they are intended to assess promote attention to those goals and ensure that disappointing outcomes are appropriately addressed.
>
> **Organized, systematized, and sustained** assessment processes are ongoing, not once-and-done. There should be clear interrelationships among institutional goals, program- and unit-level goals, and course-level goals. Assessments should clearly relate to important goals, and improvements should clearly stem from assessment results. (*Characteristics of Excellence,* p. 65)

The first step in devising an assessment strategy is planning *when* the next round of assessment will take place. In most cases, it will be wise to measure one or two outcomes in one required class, another one or two in a different class, and so forth. When devising such a schedule, consider realities of the university calendar and how frequently each course in the required curriculum is offered.

In some programs it can make sense to measure all or most outcomes at once. This approach may work well if the program includes a capstone course in which many of the outcomes will be put into practice by the students. However, when choosing this approach, it is usually a good idea to include some measurement at other points in the program as well, in order to understand student learning as it is developing. Measuring at various points in the program also helps to ensure that assessment does not become a recurring "event" or the responsibility of just one or two faculty members within the program. Assessment should be a process, and part of all faculty member's responsibilities.

The example below shows a very simple assessment timeline for the made-up biology program described in the curriculum map section.

	Semesters				
Outcome	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Spring 2015
Apply the scientific method	(develop rubric)	Assessment in BIOL 404	Reflect / Plan Changes	Assessment in BIOL 404	Reflect / Plan Changes
Develop laboratory techniques	(develop rubric)		Assessment in BIOL 303	Reflect / Plan Changes	Assessment in BIOL 303
Diagram and explain major cellular processes	(develop rubric)	Assessment in BIOL 404	Reflect / Plan Changes	Assessment in BIOL 404	Reflect / Plan Changes
Describe careers and job opportunities in biological sciences	(develop interview protocol)		Exit Interview	Reflect / Plan Changes	Exit Interview

Use the worksheet on the next page to create a timeline for assessment activities over the next several semesters for your own program.

Worksheet 5: Assessment timeline for _____

Academic Years 20____ through 20_____

	Semesters				
Outcome					

Rubric 4: Reflect on Timeline

The rubric below is designed to help you determine if you can reasonably assess and reflect on all of your program outcomes within approximately two to three years.

If you can honestly give each item below a three or better, pat yourself on the back and continue on to the next section. If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	**Developing**	**Good**	**Exemplary**	**Score**
	1	**2**	**3**	**4**	
Timeline	Assessment is bunched into one or two clear assessment "events" rather than incorporated into the life of the program	The amount of assessment work in any given semester is somewhat uneven; faculty will be over-stressed in some semesters and /or there will be assessment lulls in some semesters	The amount of assessment work in any given semester is mostly even	Assessment is clearly and evenly incorporated into the curricular schedule	
Faculty Responsibility	All or most of the assessment responsibility is taken on by a small number of program faculty	Assessment responsibility is uneven, with some faculty not involved at all	Assessment responsibility is mostly even, with some faculty taking on more responsibility than others	Assessment is clearly part of normal faculty expectations within the program	

5: Developing or Choosing an Assessment Methodology

Middle States explicitly does not prescribe a specific assessment methodology or set of methodologies. However they are very clear that assessment must be "useful, cost-effective, reasonably accurate and truthful."

Useful assessment measures provide actionable data; in other words, data that help faculty and staff make decisions about improving programs and services. Useful assessment includes *benchmarks,* i.e. indicating the minimal level of performance that is acceptable.

Cost-effective doesn't always mean low-cost, although it often does. Instead, cost-effective processes are those whose value is in proportion to the time and resources devoted to them. Often, the simplest measures, derived from existing classroom assessments, are the most useful and cost-effective.

Reasonably-accurate and truthful assessment processes yield results that can be trusted. Middle States explicitly indicates that assessments should include *multiple measures,* because no single measure can ever be a perfect gauge of attainment of learning outcomes. Middle States also explicitly indicates that *direct* evidence of student learning is required.

Direct measures include work completed by students, and might include "completed tests, assignments, projects, portfolios, licensure examinations, and field experience evaluations ….. Grades alone are indirect

Useful, cost-effective, reasonably accurate and truthful

evidence, as a skeptic might claim that high grades are solely the result of lax standards. But the assignments and evaluations that form the basis for grades can be direct evidence if they are accompanied by clear evaluation criteria that have a demonstrable relationship to key learning goals." (*Characteristics of Excellence*, p. 65)

From this set of guidelines several key points emerge:

1. Use multiple measures of student learning whenever possible.
2. At least one of these measures should be *direct.*
3. "Direct" measures have a demonstrable relationship to individual learning outcomes.
4. Minimally acceptable performance targets ("benchmarks") have been established.
5. The assessment strategy should be as simple as possible.
6. Start by considering assignments, papers, exams, or other activities already in use in the program.

It may take a little work to make existing classroom assessments (exams, papers, etc) suitable as direct evidence of student learning. The key criterion for making sure that an assessment is a direct measure is whether or not it can provide single scores for individual program learning outcomes.

Exams can become direct measures if they are created using a "**test blueprint**." This is done by first establishing which of the program's learning outcomes will be measured with an exam. Then write the test items intentionally to measure these outcomes. Several sub-scores for the exam can be created, corresponding to each of the outcomes assessed on that exam. For example, if three exam questions measure an outcome concerning knowledge of theoretical approaches within the discipline, students' score on these three questions

Direct Measures of Student Learning

COURSE LEVEL

- ★ Course and homework assignments
- ★ Examinations and quizzes
- ★ Term papers and reports
- ★ Research projects
- ★ Case study analysis
- ★ Rubric (a criterion-based rating scale) scores for writing, oral presentations, and performances
- ★ Artistic performances and products

PROGRAM LEVEL

- ★ Capstone projects, senior theses, exhibits, or performances
- ★ Pass rates or scores on licensure, certification, or subject area tests
- ★ Employer and internship supervisor ratings of students' performance

Middle States Commission on Higher Education. (2007). Student Learning Assessment: Options and Resources. (2nd ed.) pp. 28-29.

can be added to get a score for this outcome. Note that it is difficult (though not impossible) to construct multiple choice exams that can effectively measure more than content knowledge. To measure skills and abilities, it is usually better to use artifacts created by students, such as papers, lab reports, essay exams, performances, or demonstrations. Suskie (2009) provides an excellent discussion of test blueprinting and other considerations when using exams for assessment. The Middle States (2003) assessment handbook also includes a very good discussion of test blueprinting.

Some standardized tests provide direct evidence of student learning, but only if the test provides sub-scores directly relevant to the stated learning outcomes. A standardized test that provides one global score or a few broad sub-scores can be used for assessment, but will be considered an indirect measure.

Other classroom assessments or learning activities (lab reports, practica, performances, artworks, papers) can also become the source of good assessment data. One very effective method for assessing student work is by creating one or more **rubrics**. A rubric is simply a scoring scheme that makes explicit what constitutes exemplary, developing, or novice work. The rubrics used in this document provide an example of one kind of rubric, but other formats can also work well. A well-designed rubric will help scorers come to agreement on which category should be assigned to student work, as the evaluation criteria are very clear. Disagreements between scorers will always exist, but a good rubric reduces the likelihood and degree of disagreement.

When developing a rubric, be mindful of how many things can be assessed with a single item. If an item (called an "indicator") on a rubric seems to be "double-barreled" (i.e., measures two or more things), consider breaking it down into two or more indicators. It will be easier to score, and results will be easier to

Test blueprints, standardized tests, rubrics, etc.

interpret. In some cases it may not be possible or desirable to break the indicator down into component parts, but do consider keeping each indicator as simple as possible.

Also, be certain that the chosen assignment will actually work with the rubric. This does not mean that a rubric needs to be tailored for every assignment; good, general rubrics will often apply to many types of assignments. However, it is important to verify that an assignment will elicit all of the behaviors on the rubric. For example, if an assignment does not call for primary sources research, a rubric item pertaining to citation style may not yield useful data.

It is good practice to share rubrics with students prior to completing an assessment, so that they are aware of faculty expectations and can strive to meet them. A good rubric never "gives the answer away." Instead, it provides a set of guidelines for students to try to achieve as they complete their work.

Part 1 of this Guide provides excellent resources on pages 18-22 to help choose assessment strategies appropriate for a degree program, including resources concerning rubric selection and development.

Setting acceptable performance standards (benchmarks) can seem quite daunting. Indeed, Suskie (2009) describes 10 different kinds of benchmarks, including local benchmarks (those established by an individual academic program), externally imposed benchmarks, benchmarking against external peers, and value-added benchmarks (demonstrating improvement over time). Many of these may be relevant to an academic program, particularly if the discipline is one that requires graduates to be licensed in order to practice in their field of study.

However, for the purposes of this document, only local defined benchmarks will be used. In this case, the faculty in a given program agree on what they believe is a minimal acceptable standard for graduates to have achieved. It may be necessary to defend this standard to external audiences, so choose benchmarks carefully. The most important consideration is that the faculty members in the program have met and discussed the benchmarks, and agree on them.

Indirect measures of student achievement can also provide valuable information. For example, in many programs the placement rate into graduate programs or professionally relevant employment may be an excellent indicator that students have achieved program learning outcomes. For some programs, it may be useful to conduct a survey of employers who have hired recent graduates. In some cases a survey of students or recent graduates may provide valuable information. Any information that provides data that can inform change can be a good indirect measure of student learning.

As an aid to keep track of assessment methods, you may find it useful to complete a table like the one on the next page.

Indirect Measures of Student Learning

COURSE LEVEL

- ★ Percent of class time spent in active learning
- ★ Number of student hours spent on service learning
- ★ Number of student hours spent on homework
- ★ Number of student hours spent at intellectual or cultural activities related to the course
- ★ Grades that are not based on explicit criteria related to clear learning goals

PROGRAM LEVEL

- ★ Focus group interviews with students, faculty members, or employers
- ★ Registration or course enrollment information
- ★ Department or program review data
- ★ Job placement
- ★ Employer or alumni surveys
- ★ Student perception surveys
- ★ Graduate school placement rates

Middle States Commission on Higher Education. (2007). Student Learning Assessment: Options and Resources. (2nd ed.) pp. 28-29.

Assessment will occur in the class or experience:	**Addressing the following learning outcome(s):**	**Using assessment method (s):**
PSYC 100 – Introductory Psychology for Majors	• *Knowledge of psychology as a science* • *Knowledge of psychology topic areas* • *Knowledge of history of psychology*	*Multiple choice exam created using test blueprint* *Rubric to assess a short paper on a topic selected by the instructor*
PSYC 340 – Research in Psychology	• *Psychology Research Methodology* • *Statistical analysis* • *Appropriate use of primary sources* • *Writing in psychology*	*Rubric to assess student lab reports*
Exit Interview	• *All outcomes*	*Survey to asses:* • *Students' perception of program effectiveness in learning all outcomes* • *Students' perception of importance of each learning outcome*

On the next two pages, worksheets are provided to assist you in developing an assessment methodology.

Worksheet 6: Probe Questions to Develop an Assessment Methodology

What methods are currently used to assess student learning for the purpose of grading?
Are these methods working well and providing good data on student learning?
Do these methods address all learning outcomes, and all learning domains addressed in your learning outcomes – cognitive, affective, and psychomotor?
Do these methods address multiple levels of sophistication, e.g. content knowledge, application, analysis, synthesis?
How will you set meaningful benchmarks using these methods? What factors will you consider when setting benchmarks?
Do these methods elicit information that will be useful for making improvements?
Do you already use indirect measurements of student learning? Would indirect measures be useful?
Are important learning outcomes evaluated by multiple means, or can they be?
If this worksheet reveals any gaps in the assessment strategy, how can you best address those gaps?

Worksheet 7: Honing the Assessment Methodology

Referring to the curriculum map and assessment timeline, fill in the table below.

Assessment will occur in the class or experience:	Addressing the following learning outcome(s):	Using assessment method (s):

Rubric 5: Reflect on Assessment Methodology

The rubric below is designed to help you determine if the measurement strategy you have chosen is sufficient to measure your program learning out comes. If you can honestly give the program's assessment methodology a three or better on the items below, pat yourself on the back and continue on to the next section. If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	**Developing**	**Good**	**Exemplary**	**Score**
	1	**2**	**3**	**4**	
Alignment	Instruments are not provided, OR it is not clear how the measurement methods align with the learning objectives.	The measurement methods are loosely aligned with the learning objectives, but may have been developed for another purpose.	The measurement methods align with the learning outcomes, but some further explanation may be necessary	All measurement methods clearly align with and are appropriate for assessing the learning objectives.	
Direct Measurement	No direct measures are employed.	There is a direct measurement method for some outcomes.	There is a direct measurement method for most outcomes.	There is at least one direct measure used for every outcome.	
Multiple Measures	It is unclear how some of the outcomes will be assessed.	All or most outcomes are assessed using a single methodology (e.g. test or rubric)	Two or more assessment methodologies are employed across the program's outcomes.	At least two measures are used for every learning outcome.	
Acceptable Performance Levels (benchmarks) have been established	No benchmarks have been established	Benchmarks have been established, but are vague or do not seem well supported	Clear benchmarks have been established for most outcomes	Clear and defensible benchmarks have been established for every outcome	
Simplicity / Sustainability	The assessment strategy is too cumbersome to be sustained beyond one or two rounds.	The assessment strategy can only be sustained with additional personnel, release time, or administrative support.	The assessment strategy can be sustained, but will place some added stress on faculty.	The assessment strategy is simple enough to be sustained indefinitely.	

6: Collecting, scoring, analyzing, and storing data

The assessment methodology will determine how the data are collected, scored, and analyzed.

If the primary means of assessment is applying a rubric to student work or other artifacts, a strategy for collecting, storing, and scoring student work must be devised. Some decision points are listed below.

- ★ **How many examples of student work will be scored?**
  - If the program is large, it is usually unnecessary to score all students. Instead, a randomly selected sample of students will suffice. If a sample is used, make sure not to introduce systematic bias by sampling only from one section of a large class, or from one instructional location.
  - In some programs, it may make sense for all instructors of a class to use a common rubric for grading an assignment. Scores on this rubric can then be used for assessment as well as grading. In this case, all students will be scored for their grades, but only a sample may be extracted for assessment.
- ★ **Where will student work be kept until it is scored?** If the student work is available in electronic form, a secure place is needed to store the electronic records until it is scored. Ideally, student work should be kept for later review or cross-checking.
- ★ If the artifact is an oral presentation, performance, or a rating of student work on an internship or field experience, **how will this experience be captured for assessment purposes?** In some cases filming the students may be appropriate. In others, it may be more effective to train field supervisors or other observers in the use of the rubrics or other assessment methods.
- ★ **How will scorers be trained?** While a good rubric should clearly indicate performance levels and be reasonably easy to use, new scorers often need some orientation to the use of the rubric.
- ★ **How many scorers will score each artifact?** In some cases, two or more scorers may rate each artifact, in order to ensure that scorers are using the rubric in similar ways. In other cases it is not practical to use more than one scorer.
- ★ **How will disagreements between scorers be resolved?** It is a good practice to determine in advance what to do if scorers disagree on a rating. Often if the disagreement is slight (i.e. a rating of "2" vs a rating of "3"), the rating is allowed to stand; but more serious disagreements usually need to

be resolved via discussion. Many such disagreements may point to a need to revise the rubrics for greater clarity.

★ **How will the scorer's ratings be collected?** An online system or paper forms may be used. If paper is used, somebody will need to enter the scores into an Excel spreadsheet or other electronic format for data analysis.

If the primary means of assessment is tests, then simply administer the test and keep careful records of student achievement on each test item. Typically this will be done by creating a spreadsheet including each student's score on each item of the test.

Once the data have been entered into some electronic format, simple statistics should be calculated. Usually, all that is required is a mean (average) and standard deviation for each learning outcome that was assessed. It is a good idea to present the means in the form of a clearly labeled graphic. If calculating these statistics is daunting or unfamiliar to you, the Office of Educational Resources and Assessment can help you devise a system that works for you.

If the program is very small, calculating statistics may not be meaningful. Instead, small programs may choose to present a verbal description of their students' strengths and weakness. Such reports should be careful to focus on programmatic concerns rather than explanatory details about individual students. In some cases, it may make sense to collect data over several semesters before acting on them, in order to have sufficient information for the program to feel confident about observations.

Below is an example of aggregated rubric scores for an essay that was rated on a five-point scale.

Essay Criteria	**Fall 2012 (n=76)** Mean Average	**Spring 2013 (n=68)** Mean Average	**Combined Mean Average**
Focus	**4.2**	**4.1**	**4.15**
Paragraphing/ Organization	**3.8**	**3.6**	**3.7**
Details/ Development	**4.6**	**4.2**	**4.4**
Spelling/ Grammar	**2.9**	**2.7**	**2.8**
Overall Essay Scores	**3.875**	**3.65**	**3.7625**

Worksheet 8: Data collection strategy for _____

Some items on this worksheet may not apply to all programs. Others may require additional sheets with further explanation.

What is the basis for assessment (exam or test, written work, other tangible artifact, performance or work sample)?	
How many examples of student work will be scored?	
Where will you store student work until it is scored?	
If assessment is based on a performance, presentation, or work sample, how will you capture the experience for assessment?	
How will scorers be trained?	
How many scorers will score each artifact?	
How will disagreements between scorers be resolved?	
How you will collect the scorer's ratings?	

Worksheet 9: Data Analysis for _____

This worksheet provides one simple way to report your assessment results. If you need help calculating means or standard deviations, please contact the assessment office.

Outcome	Mean	Standard Deviation	Brief Discussion

Graphical representation of data

Rubric 6: Reflecting on Data Collection & Analysis

The rubric below is designed to help you determine if the data collection strategy and data presentation are sufficient to indicate program strengths and weaknesses. If you can honestly give the program's assessment methodology a three or better on the items below, pat yourself on the back and continue on to the next section. If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	**Developing**	**Good**	**Exemplary**	**Score**
	1	**2**	**3**	**4**	
Data collection strategy	It is not clear how the program intends to select students and/or gather data.	The plan refers to a need to select students and devise a strategy, but implementation details are lacking	The measurement strategy is described but some areas are unclear	The measurement strategy is clearly described in sufficient detail to reproduce in subsequent assessment cycles.	
Data collection and storage logistics	The plan does not directly address the practical aspects of data collection and storage	The plan makes reference to the need for a data collection and storage strategy, but implementation details are lacking	The plan includes some evidence of planning for data collection and storage, but some details are unclear	There is a clear and well thought-out strategy for collecting & storing student work and maintaining data	
Scoring	No description of the scoring process is provided	The scoring process is described, but important details are missing	The description of the scoring process is mostly clear, but some details are unclear	A clear description of the scoring process is provided	
Data	No data are provided	Data are presented without analysis or out of context; it is impossible to relate data to individual learning outcomes	Data are given in an intermediate form that can be readily connected to specific learning outcomes	Data are presented in clear, simple form, and connected to specific learning outcomes	

7: Communication and Closing the Loop

Using assessment results to stimulate change

The main purpose of assessment is to help ensure that students are learning what they need to learn, and to improve student learning by making thoughtful changes to the program. As Suskie (2009) points out, using assessment results to stimulate change begins when the assessment is first developed. If assessment is focused on important learning goals, those with a stake in the results in the assessment process are involved, and assessment results are disseminated to the right people, 90% of the work of "closing the loop" has already been done.

If the assessment results are perfect, i.e. all students have achieved or exceeded benchmarks, the implications of this finding still need to be thoughtfully considered. It is possible that benchmarks are not sufficiently rigorous, or that the assessment methods are not appropriate for the level of students. If the program faculty are confident that the criteria are rigorous and have been fairly applied, then certainly all can feel proud of this result. Still, it may be worthwhile to consider where to go from here.

If the assessment results are not perfect, think about what can be improved. Start by considering the learning goals. Are there too many of them to adequately cover in the degree program? Are they appropriate for the level of study? Has the curriculum been thoughtfully designed to meet these learning outcomes? Are there sufficient opportunities for students to revisit specific skills throughout the curriculum? In many cases, "tweaks" to a single class or even a single assignment will be sufficient to address most concerns. Substantial changes to the curriculum should only be undertaken if compelling evidence collected over several semesters indicates that learning outcomes are not being met by a troubling number of students.

Assessment results should ***never*** be used as part of promotion and tenure decisions or other faculty personnel actions. As Suskie (2009) points out, doing so is the most successful method for killing any assessment program. If it is suspected that a particular faculty member needs help with teaching, then chairs or directors should help him or her find the resources needed to improve. The Teaching and Learning Center (x7061, Metropolitan Campus; x8060, College at Florham) provides many workshops and other resources that may be helpful.

An important part of this process is engaging faculty in a program in discussion of the assessment results and planned improvements. Just as all faculty members should be involved in assessment, all faculty members should have a say in how assessment results are used to make improvements. In many cases, other groups should also be involved in discussions of assessment results.

For example, if a science program's assessment concludes that students in upper level classes are weak in basic math skills and that this is affecting students' ability to succeed, faculty teaching lower-level math classes can be approached for help with designing refresher tutorials, or for adjusting the introductory math curriculum to stress content areas relevant to the sciences. If students in a psychology class are experiencing difficulty finding relevant research to support arguments in term papers, librarians may be consulted to help students in the program develop better discipline-specific information literacy skills. These discussions are the most important component of "closing the loop."

Worksheet 10: Closing the loop for _____

In the space below, provide the dates and a brief description of any faculty meeting(s) in which the results of the assessment were discussed. Attach minutes of the meeting(s) if available.
Describe specific changes to the assessment strategy that will be made as a result of this assessment. (i.e., if the data are not sufficiently informative, how will you address this in future assessments?
Provide a timeline for implementing these changes.

Rubric 7: Reflect on Closing the Loop

The rubric below is designed to help you determine if you have taken sufficient steps to use your assessment data to motivate change. If you can honestly give the program's efforts a three or better, pat yourself on the back – and prepare for the next round of assessment! If you do not feel that you can reach this standard without help, please feel free to ask for help.

	Beginning	**Developing**	**Good**	**Exemplary**	**Score**
	1	**2**	**3**	**4**	
Faculty-wide discussion of results	It is not evident that assessment results have been shared with faculty	Results have been shared with a small group of faculty charged with assessment or curriculum development	All or most program faculty have been involved in discussions concerning next steps, as documented in department meeting minutes or other notes	All program faculty have been fully engaged in discussions concerning next steps, as documented in department meeting minutes or other notes	
Discussion results with other relevant groups	It is not evident that assessment results have been shared with relevant outside groups	Relevant groups (such as the library or general education faculty) have been informed of assessment results but not included in discussions.	Relevant groups (such as the library or general education faculty) have been involved in discussions concerning next steps, as documented in meeting minutes or other notes	Relevant groups (such as the library or general education faculty) have been fully engaged in discussions concerning next steps, as documented in meeting minutes or other notes	
Specific changes proposed	No changes have been suggested	Changes suggested are vague or cursory, e.g. "teach harder" on one or more learning outcomes	Specific changes are proposed, but implementation details are lacking or unconvincing	Specific, meaningful changes are proposed to address any shortcomings. There is a clear timeline for implementation and re-assessment.	
Changes have been implemented	There is no evidence that any changes have been made	There is convincing evidence that some of the proposed changes will occur soon	There is convincing evidence that the proposed changes will occur soon	There is convincing evidence that some changes have already been made	

8: Documenting your work

Assessment is primarily intended to help programs improve, and thus the primary consumer of any assessment plan is the program itself. However, the University is also required by Middle States to keep records of all assessments conducted at the university. Specifically, Middle States requires that the following be documented:

- ★ clear statements of key goals, including expected student learning outcomes;
- ★ an organized and sustained assessment process (referred to in some Commission documents as an "assessment plan") including:
  - institutional guidelines, resources, coordination, and support for assessment;
  - assessment activities and initiatives that are presently underway;
  - plans to develop and implement future assessment activities and initiatives;
- ★ assessment results demonstrating that the institution and its students are achieving key institutional and program goals; and
- ★ uses of assessment results to improve student learning and advance the institution.

Program assessments are one important piece of the documentation required. Each college at Fairleigh Dickinson University has different standards for documenting assessment in academic programs and submitting documentation to the Dean of the college. Many individual programs also must follow documentation requirements to fulfill disciplinary accreditation needs.

However, as a minimum, each program should submit an annual report to the relevant Dean and to the Office of Educational Resources and Assessment. Reports should be submitted by the end of June, documenting activities that have taken place in the preceding academic year. Reports should include:

- ★ Current expected learning outcomes for the program, formatted as described in Section 1 of this document
- ★ A description of how each relevant General Education goal of the University will be reinforced in the major, as outlined in Section 2 of this document
  - All programs must include one or more learning outcomes that can be aligned with information literacy and technology skills, and learning outcomes must clearly include higher-order thinking skills such as critical thinking.
- ★ An up-to-date curriculum map as described in Section 3 of this document, demonstrating how the program's curriculum serves its stated learning outcomes

  - Generic syllabi from required classes should also be attached. These generic syllabi should include statements of course learning outcomes.

★ An up-to-date timeline of assessment activities as described in Section 4 of this document, highlighting the assessment activities that have been conducted in the current calendar year, but also including a timeline for subsequent years

★ A description of assessment methodologies employed in any assessments conducted during the current academic year, as described in section 5 of this document. All instruments (surveys, tests, rubrics, and so forth) should be attached.

  - If a standardized instrument is used, it need not be attached. However, information concerning the instrument should be included. Hyperlinks to internet resources are acceptable. In particular, the program must make clear how this instrument will provide separable data on each of its learning outcomes.

★ A description of the assessment strategy used during the current academic year (e.g. how many students were assessed, who scored the students' work, how scoring was done). Section 6 discusses assessment strategies.

★ A description of the results, including means and standard deviations where appropriate. A graphical representation of the data is usually very helpful. Section 6 provides ideas for presenting assessment results.

★ A brief description of how the assessment has been shared with faculty in the program and other relevant groups (such as librarians, General Education programs, and so forth), as described in Section 7 of this document. Meeting minutes should be attached when available.

★ A brief but thoughtful description of any actions that will be taken as a result of this assessment, including timelines for implementation. This description should include some insight into the input of the faculty in the program and the thought processes that led to these actions, as described in Section 7 of this document.

Prior to submitting the report, each program may consider reflecting on the report using the rubrics in this document to ensure that all relevant information has been included.

9: Closing thoughts: High Impact Educational Practices

Assessment is primarily intended to help programs make sure that students are learning what they need to learn. In recent years, law makers, accrediting bodies, and the press have called for more accountability in higher education. These entities seek to ensure that colleges and universities are producing graduates who are able to succeed in the 21st century. The Middle States Commission has historically supported the role of colleges and universities in establishing our own learning outcomes and assessing them ourselves, rather than imposing a set of prescriptive outcomes and standardized tests. If we assess our work with integrity and openness, we can allay the fears of those who continue to call for assessment using tests and other measures that may not be appropriate for us.

Assessment as a process is also intended to stimulate conversations concerning teaching and learning, and to encourage academic programs to reflect on their work. Most academic programs engage in these discussions as a matter of routine, or should. The assessment process provides data other than impressions to help guide these discussions.

Behind both of these purposes is a commitment to student learning, which should be at the heart of every academic program. As assessments are planned, conducted, and discussed, academic programs should not lose sight of the practices that lead to the richest and most enduring student learning. The Association of American Colleges and Universities (AAC&U) has described ten "high impact practices" that have a demonstrable effect on student learning, and that all academic programs should consider (Kuh, 2008).

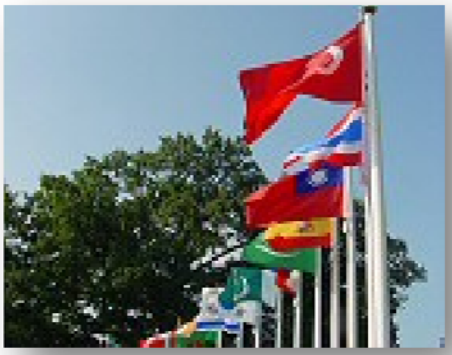
These practices include:

1. First year seminars and experiences
2. Common intellectual experiences
3. Learning Communities
4. Writing Intensive Courses
5. Collaborative Assignments and Projects
6. Undergraduate Research
7. Diversity / Global Learning
8. Service Learning, Community Based Learning
9. Internships
10. Capstone Courses and Projects

Common themes in these practices are fostering critical thinking, encouraging student engagement with learning material, promoting discussions relevant to learning goals, encouraging students to reflect on their learning, and helping students develop their abilities to form connections across concept areas within and between disciplines. Implementing these practices can have a strong and positive impact on student learning, even when assessment results are "satisfactory."

High impact practices have many benefits beyond the classroom. Students who are engaged in programs making use of these practices are more engaged in their work, more satisfied, and more likely to persist in their studies. While all students benefit, those from underserved populations benefit the most (Kuh, 2008). Students also gain skills that employers want, such as ability to work well on a team and use a variety of knowledge bases to solve problems.

AAC&U has published a large number of resources concerning the high-impact practices, and FDU faculty members are encouraged to seek them out. If faculty members or programs would like to obtain copies of AAC&U monographs, they may contact the Office of Educational Resources and Assessment for advice; many publications are available for loan. Assessment of learning outcomes can be a very good opportunity to discuss high-impact practices and how they might be used in academic programs at Fairleigh Dickinson University.



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