FLORIDA POLYTECHNIC UNIVERSITY

# Institutional Effectiveness Manual

FOR STRATEGIC AND OPERATIONAL PLAN REPORTING,
ACADEMIC AND ADMINISTRATIVE ASSESSMENT PLANNING,
REPORTING, AND CONTINUOUS IMPROVEMENT

**Fall 2019**

Developed by the Office of the Vice Provost of Academic Affairs
Office of Institutional Research & Effectiveness
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# Institutional Effectiveness

Since opening in fall 2014, Florida Polytechnic University has systematically and continuously engaged in assessment practices in both administrative functions and academic programs. Over time, our assessment quality has improved to focus on more measurable objectives that are aligned with strategic initiatives and ongoing core functions. At the academic program level, the university started almost exclusively with course-level assessment. As students moved through our curriculum, appropriate course-level outcomes grew up with the students in the program to provide us with an emerging picture of student outcome attainment at the program level. This picture began to take shape with the graduation of our first class in January 2017, subsequent achievement of initial accreditation, and now, as we move into a phase where substantive program curriculum change could be made, we have continued to evolve the assessment process to ensure program quality and continuous improvement. This manual has been reviewed and revised toward the goal of resetting the guidelines and practices to facilitate ongoing administrative and academic program assessment from the standpoint of a maturing institution.

## Purpose of this Manual

The purpose of this manual is to provide campus leaders a common language and method for assessment planning and reporting, as well as clear instructions and examples. It is divided into two major sections (or volumes): Academic Program Assessment; Administrative Unit Assessment.

To simplify, academic program assessment refers to assessing student outcomes for award-issuing curricular programs (e.g. degree programs). Unit Assessment is everybody else, e.g. Advancement, Financial Aid, Student Life, and so on. Of course, each administrative unit has its own unique mission and contributes in specific ways to the institutional mission, but for purposes of assessment processes, they are all the same.

## Institutional Effectiveness, Assessment, & Continuous Improvement

**Institutional Effectiveness (IE)** is "the systematic, explicit, and documented process of measuring institutional performance against mission in all aspects of an institution" (SACSCOC *Resource Manual*, 2nd ed, rev. 2012). An institution's **mission** statement is simply a description of what the institution does. There is a little more to it than that, but we will leave it there for now.

Institutional Effectiveness is central to the *Principles of Accreditation* of the Southern Association of Colleges and Schools Commission on Colleges (**SACSCOC**) as well as the other regional accreditation agencies in the United States. As a concept, it is not unique to SACSCOC, nor does it begin with SACSCOC. It is predicated on the notion that all facets of the institution should work toward advancing that institution's mission, thereby achieving the University's **vision**—its reputation and legacy. Since Florida Poly is a SACSCOC member institution, we take our cues from our peer institutions and base our understanding and implementation of IE on the standards and expectations set by the Southern region.

Left by itself, institutional effectiveness could become static. If your mission is to bat .300 and you always do, then you have met your mission, but you are not improving. **Continuous improvement** is a commitment to ongoing planning, evaluation, and change with the intent to improve upon the effectiveness of meeting one's mission, achieving or reaching the University's vision, and thereby delivering a higher quality experience for all institutional stakeholders. In order to "continuously improve," an organization must engage in assessment. **Assessment** is a systematic process of gathering and interpreting information relevant to your objective and operations in order to evaluate performance and make improvements. Assessment is the activity that underlies institutional effectiveness and ensures continuous improvement.

## IE and Assessment at Florida Poly

To elaborate, Florida Polytechnic University defines assessment as

> *a systemic and ongoing process of systematically and regularly collecting, reviewing and utilizing data to improve educational and academic support and administrative programs and services to enhance student learning, growth and development.*

The implementation of IE varies across institutions, but the purpose is always the same: to demonstrate mission achievement and continuous improvement.

The University's assessment process is purposefully designed to measure **outcomes** (the effect on/benefit to constituents), rather than the **outputs** (how much/how many) of work-related processes. It includes assessment, as a **formative** process, conducted for better understanding and seeks feedback that may result in adjustments and modifications to academic programs and student support services for improvement; while **summative** assessment is conducted as an overall evaluation of programs and services for the purposes of accountability, decision-making, resource allocation and meeting regulatory compliance.

Assessment as a whole serves to:

- Validate that the institution has achieved its stated mission and goals
- Improve programs and services when and as needed
- Inform campus constituents and stakeholders of the state of the institution
- Support decision-making, planning, resource allocation and external compliance

In general, the development of Florida Polytechnic University's assessment plans must:

- Be aligned with the mission, vision, core values, and strategic plan of the University.
- Provide results as a means—rather than an end—that are useful for individual students, faculty, staff, programs and the University.
- Have reasonable and manageable number of outcomes or objectives.
- Be relevant, meaningful, measurable and sustainable.
- Be efficient and feasible, using appropriate procedures, instruments and data.
- Synthesize information from a variety of instruments (both qualitative and quantitative, and direct and indirect).
- Focus on the degree programs and service units as a whole rather than on individual courses or functional level.
- Be integrated into the curriculum or services provided.
- Meet internal and external (accreditation, public reporting) requirements.
- Be ongoing rather than periodic or episodic, and continuously evaluated and improved.
- Be a coordinated effort of input and discussion by the entire department/unit and all impacted constituents.

From this foundation of assessment, Florida Poly's Institutional Effectiveness process expands to include three integrated cycles of assessment: strategic plan assessment (3 -5 years); annual administrative and academic assessment (1-year); and periodic program reviews/self-study (5-year). Although these assessment cycles occur at different timeframes, they share data and information and impact continuous improvement, evaluation, and planning of the management and allocation of institutional resources.

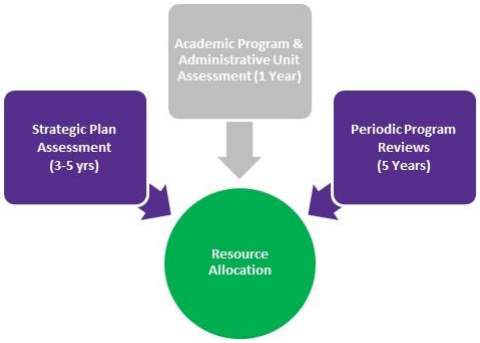


*Figure 1. Planning Process*

## Strategic Planning Process & Assessment

The **strategic planning** and assessment process is an administrative process of shared-responsibility. This process includes the following steps:

1. Analysis of the internal and external environment (SWOT; Environmental Scan, Internal and External Audit Findings, Program Reviews/Self-Studies, etc.)
2. Review and/or Revision of Institutional Mission, Vision, Core Values and Priorities
3. Development of Strategic Directions (University Goals, Objectives, Priorities and Resources)
4. Development of Evaluation Strategies (Indicators of Effectiveness/Benchmarks)
5. Review and Assess Outcomes*
    a. Adjust policies and procedures
    b. Adjust means/action plans

*The Assessment of the **Strategic Plan** occurs in the fifth step, which includes both formative and summative processes. The strategic plan formative assessment is a part of the annual assessment cycle, and when necessary adjustments are made to the policies, procedures, priorities, and/or the assessment process itself. Additionally, action plans are developed to address and respond to the areas of concern. Summative assessments are conducted at the end of the strategic plan cycle in an effort to demonstrate institutional effectiveness and accountability, and the overall achievement of the University's mission.

On an annual basis, two interrelated activities drive institutional effectiveness at Florida Poly: 1. The State of Florida Budget process and Board of Governors' Strategic plan with annual updates through the Accountability Report; and, 2. The University's Board of Trustees annual review of the University's strategic plan progress report.

These two events direct two major aspects of the University: One, the state budget impacts how the University achieves its mission, as mission achievement is driven by the resources (and effective allocation of those resources) to the appropriate activities, at the appropriate levels. What constitutes "appropriate" changes for numerous reasons and is part of what drives the need for continuous improvement.

Two, the University's strategic plan is a more focused effort to get closer to the University's ***vision—****what it wants to become*. Strategic plans may be broad-based documents that outline a path and objectives related to all or nearly all facets of a University, as our first strategic plan was (largely because we had to start a University!). More commonly, strategic plans focus on key areas of institutional priority—defined by its many stakeholders—that will enhance the profile of the University and further establish, or cement, its desired reputation and status in the world of higher education.

In academic year 2017 – 2018, the University undertook a review of its mission and vision and drafted a new strategic plan. This was an appropriate time for the Florida Poly to engage in this process because the university met its legislative mandates and achieved initial regional accreditation from SACSCOC. Our

inaugural strategic plan was largely completed. Part of any dynamic institution is the expectation that it conducts a periodic review of its mission and vision, and a strategic plan is an important part of this.

As the President's proposed plan received full approval and confirmation, the University embraced a new mission, vision, and plan for the next three to five years. Florida Poly's mission, vision, and broad strategic planning priorities through its initial phase of operations are as follows.

## Mission

*Serve students and industry through excellence in education, discovery and application of engineering and applied sciences*

## Vision

*Florida Poly will be a premier STEM university known for producing highly desirable graduates and new technology solutions*

## Strategic Plan Priorities

At Poly, the strategic planning process looks at four elements associated with an organization: positioning, priorities, payment, and performance. Broadly, these can be defined as follows:

- Positioning—who you are and what you want to be: mission and vision pieces;
- Priorities—broad directions that help the university move forward and help set the direction for
    - Goals; and
    - Tasks;
- Payments—how you are funding the priorities;
- Performance—how you are measuring your progress.

The first two of these elements—positioning and priorities—are longer-term, while goals, tasks (subsets of priorities), payment and performance are annual operational matters.


*Figure 2. Strategic Plan Elements*

By way of priorities, Florida Poly's 2018 – 2023 Strategic Plan identifies four priorities to guide its growth over the next five years. These are:

1. **Degree Alignment**: Build prominent programs in high-paying industries
2. **Student Success**: Prepare students for a lifetime of success
3. **Economic Development**: Grow a high-technology economy around Florida Poly
4. **Affordability and Efficiency**: Maximize value for the student

Many of these priorities and goals align well with the University's Accountability Plan for the Board of Governors of the State University System of Florida. The University's Accountability Plan for the BOG sets out specific metrics related to performance-based funding as well as other institutional processes and attributes.

Each priority within the strategic plan is supported by multiple goals that provide broad direction for operationalization. Annually, an **operational plan** is developed based on progress toward accomplishing the tasks, achieving the goals, and advancing the priorities.

At Florida Poly, the strategic plan is monitored by a balanced scorecard. The balanced scorecard is a type of dashboard that provides a link between the strategic plan and the annual operational plan.

## Balanced Scorecard and Annual Operational Plan

A balanced scorecard is a tool used for managing strategy. It formalizes a link between institutional strategic outcomes and internal processes that impact those outcomes. Typically, the scorecard consists of four layers that are regulated by strategic objectives, measures, targets, and initiatives or tasks. The four layers speak to different aspects of the organization and include the financial layer, the customer layer, process layer, and organizational foundation. (For more about balanced scorecards in business, industry, and non-profit sectors, visit the Balanced Scorecard Institute.)

There are examples of institutions in higher education that have adapted the balanced scorecard to help drive institutional performance, and Florida Poly is doing so as well. The current draft of the University's balanced scorecard is shown below.

At the top is our mission and vision, holding forward to what we must do and what we want to be. The next layer, the outcomes/accountability layer, reflects the four priorities of the strategic plan and includes specific outcomes associated with both the strategic plan and our BOG Accountability Plan.

Following the top layer is the "consumer" layer, which speaks largely to how various stakeholders feel about the University and the job we are doing. This includes industries, students, and the state.
The top two layers measure the results of our actions. But the next layer, the process layer (or "control knobs") is where we have the power to drive the attainment of those top two layers. The Process layer speaks to broad internal activity that undertaken specifically to attain the institution's outcomes. These process layer items stem from asking the question, what does it take to achieve a specific outcome? Working backwards from that, one develops a general (or maybe highly specific) category of activity. At this layer, outcomes are defined that are specific to tactics and tactics are clear actions that can be undertaken to address an area for improvement. (See *Figure 3*, next page.)

# Balanced Scorecard

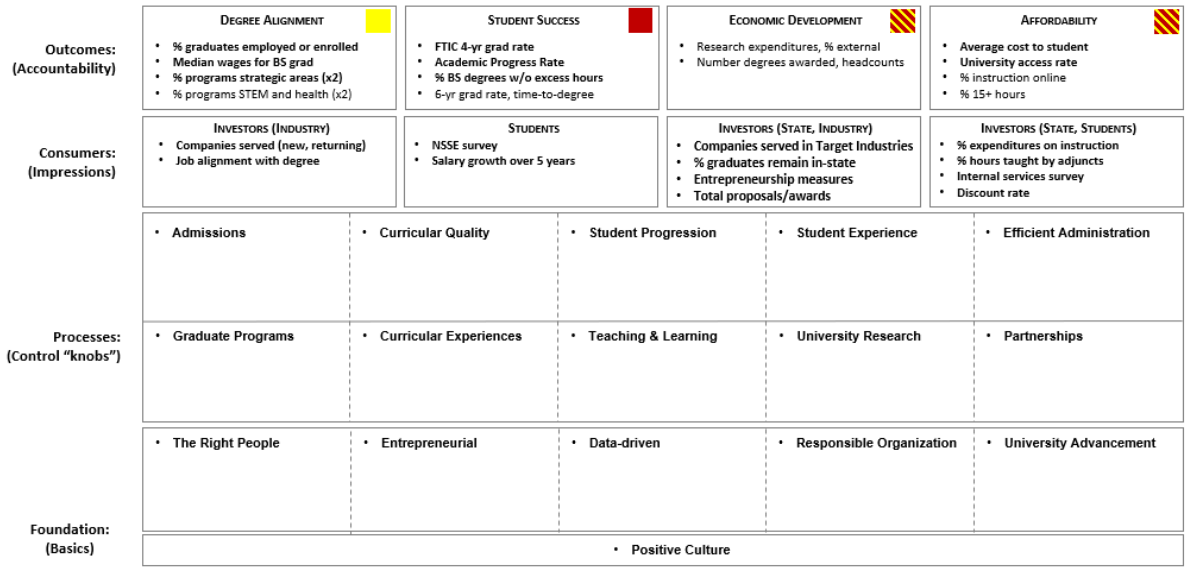


*Figure 3. Balanced Scorecard*

The final layer, the foundation, speaks to core elements that guide how we behave as an organization. These can be value statements, aspects of an institution's history, traditions, or specific mission within the higher education sphere. Typically, this is a matter of defining and articulating our guiding principles, which may serve as a reference point for shaping any debate at the process level.

This all comes together in several ways: in leadership meetings, departmental and divisional meetings and through collaboration with the Office of Institutional Research & Effectiveness. Through an iterative, data-driven, and collaborative effort, process-level initiatives are developed that support an annual operational plan, which helps inform key elements in unit-level assessment plans. The following figure approximates the process and relationship of these pieces. (See *Figure 4*, next page.)

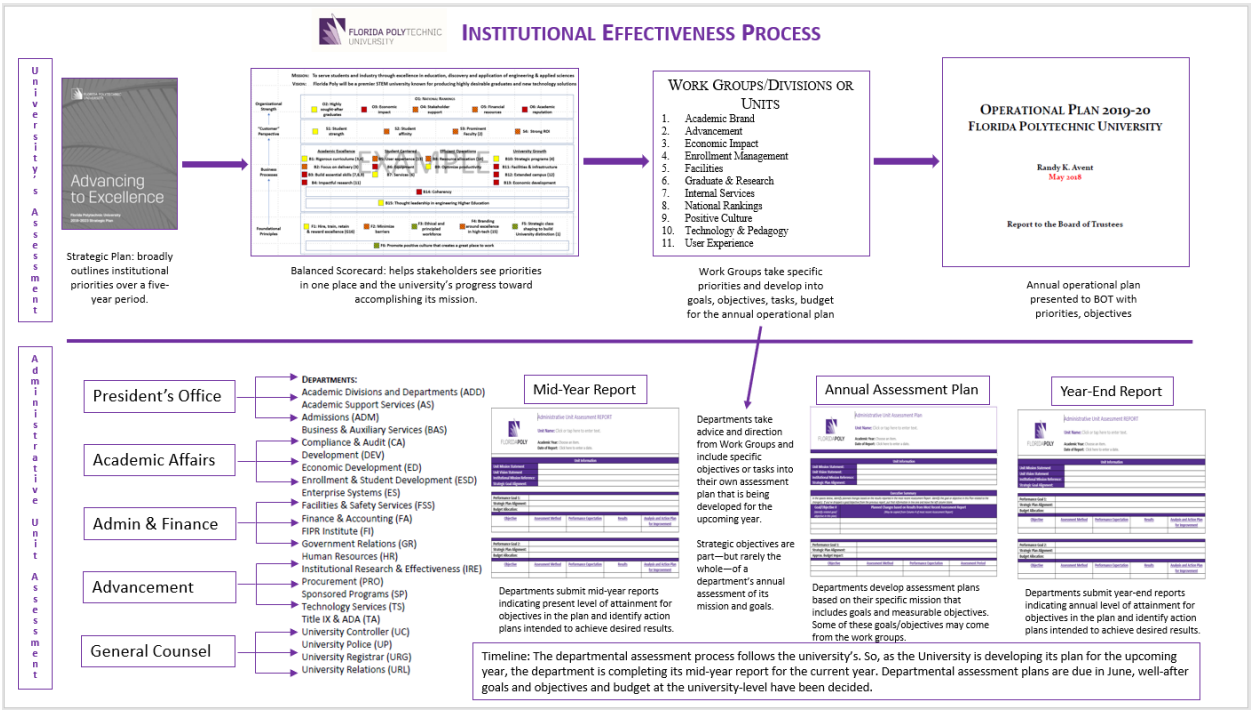


*Figure 4. IE Process*

## Annual and Periodic Assessment for Academic Programs

Academic Programs undergo both annual assessment and periodic program review. Florida Poly's processes are aligned to support the Florida Board of Governors Academic Learning Compacts – Regulation 8.016. This means that for all baccalaureate programs, faculty must develop Academic Learning Compacts that identify, at a minimum, the expected core student learning outcomes for program graduates in the areas of

- Content/discipline knowledge and skills
- Communication skills
- Critical thinking skills

All program assessment plans include student learning outcomes that align with, or directly address, these core competencies.

Program assessment includes establishing outcomes for learning that graduates must be able to demonstrate upon completion of the program. These outcomes are assessed throughout the program to provide indications of how well the program is supporting student learning toward these ends. Programs report key results on program learning outcomes at the end of each academic year.

Periodically, academic programs engage in a more in-depth self-study process. This is typical of programs with professional accreditation, but for those not accredited by a professional agency, the Board of Governors requires a periodic self-study for each institution's academic programs on a five to seven-year basis.

## Annual Assessment for Administrative Units

As you can see, Institutional Effectiveness is a multi-layered, complex process that affects all aspects of an institution. While a precise calendar of IE planning and evaluation events shifts over time, annually, it typically begins and ends on July 1 and June 30th, respectively. Nevertheless, the process includes the following:

1. Planning—typically a winter process (Dec – Feb 15)
2. Budgeting—spring (Jan – March)
3. Mid-year Assessment—by February 1
4. End-of-Year Assessment—July – September (final Sep 30th, but earlier in reaffirmation years).

The year-end report covers the previous academic year. The subsequent planning phase is a look at results from the prior year, but also progress attained at the mid-year point. Planning is for the next academic year. The mid-year assessment pertains to the current-year plan.

*Table 1. Admin Assessment Cycle*

| | Su (-1) | Fa/Wi (-1) | Sp (-1) | Su (1) | Fa/Wi (1) | Sp (1) | Su (+1) | Fa/Wi (+1) | Sp (+1) |
|---|---|---|---|---|---|---|---|---|---|
| Year + 1 (Next Year) | | | | | Plan Y+1 | Plan/Budget Y+1 | Implement Y+1 | MYR Y+1 | Cont. Y+1 |
| Y = (Current Year) | | Plan Y | Plan/Budget Y | Implement Y | MYR Y (Dec/Jan 15) | Cont. Y | Wrap-up Y | Year-end Report Y | |
| Y – 1 (Last Year) | Implement Y-1 | MYR Y-1 | Cont. Y-1 | Wrap-up Y-1 | Year-end Report Y-1 | | | | |

Su = summer (Jun – Aug)
Fa/Wi = fall/winter (fall-term, Sep - Jan-Feb 15)
Sp = spring (spring term, Jan – May)
MYR = Mid-year report
*Current year shows one full cycle from plan to final report; the green highlight shows the overlap across years, so that the spring Y+1 planning and budgeting, Y1 mid-year report, and Y-1 year-end reports happen within approximately the same time-frame.*

An annual assessment plan is built on several inputs. Two of these inputs are the year-end report for the previous cycle and the mid-year report for the current cycle. Institutional achievement of key metrics also informs the operational plan, which often results in influencing a unit's annual plan.

In an ideal world, we would finish a full cycle, then plan and budget, then receive funds, then start the new cycle. The State University System budget cycle requires that by late spring, we have put in our institutional request for operating funds for the upcoming academic year. That's too early to assess the results for the current year, so the upcoming year is based on the mid-year review of the current year, and the year-end review of the previous year.

Assessment Reports reflect the results, or outcomes, of a few critical assessments that are an approximate culmination of a range of day-to-day operational decisions within a specified timeframe (typically an academic year). What makes these reports more meaningful is the analysis that reflects actions taken, use of results, and plans for improvement. SACSCOC cares mostly whether we demonstrate a systemic process that focuses on plans for improvement.

# Institutional Effectiveness Committee (IEC)

The University's Institutional Effectiveness Committee consists of a selection of faculty and staff leaders who reviews unit and program assessment plans and reports and provides assistance to the university-community in delivering useful, valid, and reliable assessment.

# Academic Program Assessment


*Figure 5. Important Lab Results*

## Academic Program Assessment Defined

From an Institutional Effectiveness and accreditation standpoint, when we talk about academic program assessment, we mean the following: any degree-granting program, certificate program, or other academic program that accounts for a substantial part of a student's curriculum, such as general education and core major curriculum. Programs such as concentrations, minors, and certificates are also assessed, but usually within the context of a larger credential-granting program or broader university initiative. Non-credit programs are usually assessed as part of an administrative unit's objectives.

There are really two major types of program assessment: annual program and learning outcomes assessment and periodic program review.

Annual program assessment involves assessing program learning outcomes at the course level on a regular (semester) basis. Each term, courses with learning outcomes that align to program-level outcomes administer and collect assessment data and report that data to a departmental assessment coordinator and the Office of Institutional Research & Effectiveness. Results and evidence are compiled into reports that program faculty review on an annual basis and use for making decisions about instructional methods, curricular needs, resources, or other facets of the program that pertain to student learning. In some cases, all program outcomes can be **assessed** and **evaluated** annually. In others, all program outcomes are assessed whenever relevant support courses are taught but only a portion of outcomes are evaluated each year. The remaining program outcomes are evaluated within at most a 3-year cycle. Note the use here of two critical terms as it becomes important throughout this document and in the way we think about and discuss program assessment:

- **Assessment**, provisionally, means the administration of a tool/method for gathering information on student learning, the collection of that information, and the reporting of it.
- **Evaluation** refers to the process of reviewing assessment results and making changes for the purpose of continuous improvement. It is usually done among multiple program faculty and sometimes external stakeholders. Evaluation is where the results of assessment inform decision-making about how to improve the program.

Program Review is a more comprehensive self-study of a program's effectiveness. For accredited programs, this occurs on a cycle set by the accrediting agency. Internally, Florida Poly adheres to the Florida Board of Governors Regulation 8.015 that requires all State universities establish a program review policy and cycle. The Regulation specifies that for non-accredited programs, the institution must develop a policy and process for periodic review. Florida Poly's policy FPU-5.0062AP address this topic. Assessment of student learning plays a significant and indispensable role in any program review self- study. A full discussion of program review is beyond the scope of this manual, which is chiefly concerned with assessment. Program review, however, is a component of overall institutional effectiveness as discussed in the introductory section to this manual.

Throughout this section, we will discuss the following elements related to academic program assessment:

- Program Description
- Program Mission
- Program Educational Objectives (PEOs)
- Program Learning Outcomes (PLOs)
- Course Outcomes (CLOs)
- Performance Indicators (PIs)
- Program Mapping
- Tools and Methods
- Rubrics

- Data Collection and Evidence
- Review Cycle & Improvement Process

## Program Description

Program description or catalog description is a statement that identifies a program's discipline, the level at which it awards a credential, any special areas of focus or concentration, key aspects of the educational experience (internships, study-abroad, project-based curriculum), and so on. This description helps to define the program and clarify what it is and is not.

## Program Mission Statement

While a program description *describes* the contents and features of a program, the program mission statement speaks to the program's purpose both institutionally and professionally (i.e. for the field and profession of X). The mission serves to announce to stakeholders at all levels—students, faculty, industry/employers, administration and Boards—in very broad terms the program's educational objectives, learning outcomes, and intended impact.

## Program Educational Objectives (PEOs)

Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. They should align with both the program and University's mission and they should be designed to address the needs of the program's stakeholders. PEOs answer the question of what knowledge, skills, and abilities our graduates need to demonstrate in their careers.

PEOs should

- Align with stakeholders' needs and institutional mission
- Be clearly defined
- Serve as targets for early career development
- Be relevant to the profession
- Achievable and realistic

Stakeholders in the program may be considered to include the following:

- Employers
- Graduate programs
- Students
- Faculty

Program Educational Objectives are developed in collaboration with stakeholders—those who have a stake in the quality and characteristics of your graduates.

Assessment of PEOs is different from learning outcomes assessment. As PEOs are broad statements, they are not meant to be measurable, but developed out of collaboration with stakeholders and subject to a periodic review process that takes into account the evolving needs and perspective of the program's stakeholders. Assessment, then, is of the statements themselves, not so much the outcomes or even outputs they project. Data or results related to student attainment of these objectives may be something the program's stakeholders look for, but it is not something ABET, for example, would require.

As an institution, however, Florida Poly has several student achievement metrics that include student success beyond graduation, such as job placement, salary, and so on. Therefore, as part of the development and ongoing review of Program Educational Objectives, there must be a collaborative effort among program

faculty and administrative staff to ensure that all stakeholders are included in the process and that the relevant questions are asked to validate the appropriateness of the objectives and the results.

Instruments and Methods for Assessing PEOs include the following:

- Advisory Boards (experts in the field/industry) who meet on a regular basis to review the program (meeting minutes);
- Internship Providers (assessment/surveys)
- Alumni Groups (surveys, focus groups)
- Institutional and State data (salary database; national clearinghouse, and so on).
- Self-reported graduation exit survey data

## Program Learning Outcomes (PLOs)

Program-level learning outcomes are statements that speak to the knowledge, skills, abilities or dispositions graduates of the program should exemplify upon completion of the program. As PEOs speak to what students do early in their career, PLOs speak to what they can do as a result of their learning from the program. Program Learning Outcomes in ABET-speak are typically called "Student Outcomes." For purposes of Florida Poly's programs, these terms are interchangeable, but the institutional preference is for program learning outcomes (PLOs).

While PLOs are typically expressed in a broad way that speaks to a set of related knowledge and skills within a specific area. For example, a learning "competency" our outcome might broadly address students' ability to conduct research appropriate to the discipline. Obviously, this requires a certain level of disciplinary knowledge as well as skills in research, writing, and potentially a range of other related abilities to demonstrate successfully. Thus, most PLOs require more precise supporting outcomes to help define them and outline the range of elements that must be taught in a curriculum to support successful achievement of the PLO. Programs with discipline-specific accreditation typically craft their program learning outcomes around values expressed by the accrediting agency, which are often written inclusively so as to meet consensus among all members of the accreditation agency.

### Developing PLOs

If a degree-granting program chooses not to adopt the PLOs of its accrediting agency, it may do so; however, it will have an additional piece of mapping to do to show how its outcomes meet those expected for all member institutions.

Programs that choose not to adopt their accreditors PLOs, or programs for which no accreditation agency exists, must develop these statements themselves.

While PEOs describe what students will be doing within a few years of degree completion, PLOs describe what they can do now (upon graduation) as a result of having persevered through the program. PLOs should speak to

- The range of **knowledge** graduates obtained from the program;
- The depth and breadth of technical **skills** graduates of the program can demonstrate;
- The scope of **abilities** (cognitive/behavioral skills) that graduates display as a result of their matriculation.

"Abilities" also coincides with another term that is useful to think of when constructing learning outcomes: dispositions. **Disposition** refers to the attitude or professional demeanor of a graduate as it is appropriate to the profession. Outcomes related to dispositions are common in education and healthcare fields.

As an example of Program Learning Outcomes, consider the following from the Engineering Accreditation Commission of ABET, where students will demonstrate…

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Course Learning Outcomes Assessment (CLOs)

Just as there are program-level outcomes, courses too have specific learning outcomes. The course outcomes describe the knowledge, skills, and abilities students should demonstrate upon completion of a course. Course outcomes usually build on one another in some way, best exemplified by the progress from one level of learning to the next in the expression of the outcome itself, e.g. "Identify X" requires less from the student than "Describe X." In short, course outcomes often work their way up Bloom's taxonomy.

Course Objectives vs. Course Outcomes:

Course objectives are what you plan to put *into a course, e.g. to teach students about….*; learning outcomes are what students are supposed to *get out of a course*. (See Appendix C)

*Figure 6. Objectives v. Outcomes*

As stated, course outcomes relate to course content and do not necessarily align in a clear, measurable way with program outcomes. Therefore, assessing course outcomes does not necessarily translate to meaningful program assessment. Course assessment is, however, a strongly recommended practice as it informs a teacher's practice and the impact of a range of pedagogical choices on one's own students. *Therefore, Florida Poly strongly encourages that faculty engage in course-level assessment each term*. In some cases, this assessment may be required by the program or may be on a schedule or cycle where X course is assessed every fall term, but not in its off-sequence offering. At the very least, each faculty member should develop a Course Memo (see Appendix D) that serves as a reflection of practice. These memos have value for the program but also value for the individual practitioner and can form a meaningful part of a faculty member's teaching portfolio.

As suggested, it is good practice to engage in course assessment each term, but in some cases, that may not be necessary. However, in the following cases, course assessment is necessary:

- New courses
- Courses that have undergone significant revision
- Courses with persistent problems
- Gateway courses

In some cases, a course outcome may align directly with a program outcome, such that the assessment of the course outcome functions equally well as assessment for a program outcome. In these cases, it may work that only one or two course outcomes are assessed each term with other outcomes assessed on a more cyclical basis.

Regardless of whether you are developing assessments for program or course outcomes, the student

learning outcomes statements should be expressed as "**performance indicators**." Course outcomes are an ideal place to use as performance indicators for program-level learning outcomes, especially where program learning outcomes are not phrased in an especially measurable way.

## Performance Indicators (PIs)

Performance Indicators are concrete, measurable performances students must demonstrate as indicators of achievement of the outcome. The *purpose of a performance indicator is that it is a measure of a student's performance as it relates to a program learning outcome*.

As stated, performance indicators are specific, concrete actions that students should be able to perform as a result of their learning.

Performance indicators are a consideration of two elements:

*Action Verb + Content Referent*

The action verb articulates the depth to which the student should demonstrate the performance (see the chart on p. 29 for level indicators). The content referent is the focus of instruction.

Consider the following example:

- Outcome: students will be able to conduct an experiment and interpret data.

Performance Indicators—Students will demonstrate the ability to:

- Follow the design of an experiment plan (knowledge)
- Acquire data on appropriate variables (applications)
- Compare experimental results to appropriate theoretical models (analysis)
- Offer explanation of observed differences between model and experiment (evaluation)

Performance indicators rigorously define the specific actions that demonstrate outcome achievement. They provide a clear foundation for implementation in the classroom and clearly communicate to different instructors of the same course. Furthermore, they make expectations explicit to students, which is sound pedagogy.

## Program Mapping

Critical to program coherence and effectiveness is the task of mapping. This is the process of showing how curriculum, objectives, outcomes, course-level assessments, and other assessments integrate with one another to show a comprehensive, coherent program of learning and evaluation. Depending on the nature of the program, several different maps may be required to provide a complete picture.

*Table 2. Curriculum Map Requirements*

| ABET Programs using ABET Student Outcomes (SOs) | ABET Programs NOT using ABET Student Outcomes (SOs) |
|---|---|
| 1. Map of PEOs to PLOs<br>2. Map of curriculum (courses) to PLOs | 1. Map of PEOs to PLOs<br>2. Map of PLOs to ABET 1-6 Outcomes<br>3. Map of PLOs to Curriculum<br>4. Map of 1-6 to PEOs<br>5. Map of 1-6 to Curriculum<br>(These can be consolidated into fewer "maps" for presentation, but the point is to cover all the permutations) |

*Table 3. Curriculum Map Requirements-Non-ABET*

| Non-ABET Programs |
|---|
| 1. Map of PEOs to PLOs<br>2. Map of curriculum (courses) to PLOs |

## Sample PEO to PLO Map

*Table 4. Sample PEO to PLO Map*

| **Program Learning Outcomes align With Educational Objectives as Described in this table. (adjust as needed)** | **PEO 1** Hold a leadership position in their company. | **PEO 2** | **PEO 3** | **PEO 4** |
|---|---|---|---|---|
| Critical Thinking | | | | |
| Quantitative | | | | |
| Project Management | | | | |
| Team work | y | | | |
| Communication | | | | |

## Sample Curriculum Map (Courses to PLOs)

*Table 5. Sample Curriculum Map (Courses to PLOs)*

| **Course Code and Title**<br>• Color code each concentration<br>• Identify capstone<br>• Identify whether course introduces, reinforces, or assesses (I,R,A) a program outcome | **PLO 1** | **PLO 2** | **PLO 2** | **PLO 4** | **PLO 5** | **Credit Hours** |
|---|---|---|---|---|---|---|
| IDS 1380 Intro to STEM | I | | | I | | |
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The third layer of this map is reflected in the assessment plan. The assessment plan illustrates the relationship between course outcomes (performance indicators) and the program learning outcomes, sets the assessment methodology, performance expectation, and any notes related to administration of the assessment. The assessment report reflects these items (except administration notes) and includes actual results, analysis, and action plans for improvement.

*Table 6. Assessment Report Table*

| **Program Learning Outcome #1** | **Students will demonstrate effective, context-appropriate communication skills and strategies.** | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **Courses** Where outcome is assessed | **Tools/Methods** *Assessment Tool(s): Portfolio, Project, Exam, Survey, Essay, Thesis, etc.* *Method: Rubric, Scoring Guide, Answer Key, etc.* | **Performance Expectation** *Based on the evaluation instrument, what level constitutes proficiency? What percentage of those assessed should be expected to attain that proficiency?* | **Results** *Identify whether criterion was Met/Not Met and the numeric results (% and #).* | **Analysis and Findings** *Provide an analysis and interpretation of the results; answer the question, what did the program learn based on the results of the assessment?* | **Action Plan for Improvement** *Based on these findings, explain the program's plan for improving achievement of the educational objective.* |
| | | | | | |
| | | | | | |
| | | | | | |

# Tools and Methods

Once the higher-level aspects of an assessment project have been determined (i.e. objectives, outcomes, CLOs or PIs), there comes the task of determining the tool and method for assessing student performance and the measure for determining success.

When we talk about assessment tools and methods, we are referring to three things:

1. The *assignment*/student performance activity;
2. The *instrument* used for evaluation; and,
3. The *criteria* by which it evaluates that assignment/performance.

In this section, we will look at several tools and methods for assessing student learning. In many cases, the best tool for the job is a rubric that defines student performance and established levels of accomplishment. Rubrics can be constructed that will support the assessment of most any student performance (assignment) and offer the ability to establish clear expectations for the quality of work as well as create consistency in evaluation across program faculty. Certainly, rubrics are not always appropriate ways to measure student performance, but they are versatile tools that, when constructed well, can yield a wealth of information about student learning and inform good teaching decisions.

## Rubrics

Rubrics are a way of explicitly stating the expectations for student performance. They may lead to a grade or be part of the grading process, but they are more specific, detailed, and disaggregated by specific skill than a grade. A grade is a holistic assessment of a student's work, whereas a rubric is more analytic (note: rubrics can be holistic, too!).

For our purposes, analytic rubrics are the best tool for delineating performance indicators that support outcomes for program-level assessment. In addition to detailing the key performance indicators upon which students will be evaluated, a rubric provides indicators of level of performance and descriptions of each level of performance and what is to be expected.

A rubric is as much an assessment tool as it is an instructional aid. As a document that delineates levels of performance, students are able to understand what they are doing well and what they need to improve upon.

In summary, a rubric is

- A tool to score student performance in an assessment environment (e.g. oral presentation, research report, and so on);
- Can be used for both formative (beginning or middle) and summative (final) assessment;

- Defines expectations, particularly useful for process and abstract concepts;
- Provides a common language to help faculty and students talk about expected learning;
- Increases reliability of assessment across multiple raters.

### *Example Rubric*

Outcome: students will be able to conduct an experiment and interpret data.

*Table 7. Sample Rubric*

| Levels of Performance → Indicators | Unsatisfactory | Developing | Satisfactory | Exemplary |
|---|---|---|---|---|
| **Follow the design of an experiment plan (knowledge)** | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator |
| **Acquire data on appropriate variables (applications)** | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator |
| **Compare experimental results to appropriate theoretical models (analysis)** | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator |
| **Offer explanation of observed differences between model and experiment (evaluation)** | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator | These boxes explain what constitutes this performance level for the indicator |

### *Two Types: Holistic and Analytic*

There are two basic types of rubrics: holistic and analytic. Holistic rubrics are used to make judgments based on overall impressions, while analytic rubrics enable the scorer to assess specific aspects of a performance.

### *Analytic Rubrics*

The above example is an analytic rubric. It breaks out the evaluation by descriptor enabling the assessor and the student to drill down to what precisely needs improvement. In the example rubric above, each category of performance levels would include multiple descriptors.

### *Generic or Task-Specific Rubric*

Rubrics can be generic. For example, a rubric that evaluates oral communication/presentations may be essentially the same regardless of what level of student or student performance the rubric is applied to. Sometimes, however, rubrics are task-specific, such as operating a piece of equipment in the correct sequence to prevent overheating. The best choice is the rubric that most appropriately assesses what you want to know and that give students a clear sense of how they can improve. Generic rubrics are excellent for cognitive skill development; whereas a task-oriented rubric may be more appropriate for demonstration of content knowledge.

### *Performance Levels*

So how many is enough? More than one, obviously. Three to five is most common, though three may not delineate enough and five may tempt one to think too much in terms of grades rather than the details of the assessment. In any case, too many levels makes inter-rater reliability extremely unlikely, and at that point your whole foundation for assessment goes away.

### *Developing Rubrics*

Here are a few considerations for developing rubrics:

- Be clear about how it will be used, i.e. program assessment or individual student assessment;
- Decide on Analytic or Holistic; analytic tend to provide better information for program improvement;
- Student artifacts can be used as a guide in developing rubrics;
- When describing performance levels, start with the extremes and work your way in;
- Test your rubrics;
- These are iterative; one aspect of continuous improvement is improving your assessment, including your tools.

Steps for developing rubrics:

1. Identify the characteristics you want students to demonstrate (performance indicators);
2. Determine how rubric will be used: analytic or holistic; generic or task-specific;
3. Complete rubric by describing extremes and working toward the middle;
4. Review usefulness of rubric after applying and revise as needed.

## Constructed Response - Rubric Scored Assessment

This could be an essay or research paper, short answer questions on an exam, or any open-ended question that requires students to draw on knowledge and skill to respond to a problem. A common example here at Florida Poly is to ask students to evaluate a case study.

*Method*: Constructed response is best assessed with a rubric. This is a grid with criteria listed vertically and expected level of performance listed horizontally. The performance level is typically expressed as either a range of points, or some kind of Likert scale (e.g. 1-5).

For purposes of assessment, not every criterion on the rubric necessarily pertains to the Student Learning Outcome being assessed. Thus, the rubric as a whole may be used to determine a student's grade for the assignment, but only row 1 (1 criterion, for example) might be relevant to the assessment.

*Reporting*: when you report this, you will do this in two ways: 1. the number/percentage of students who met or exceeded the threshold/criteria you established for the assignment. E.g. 81% of students scored 3 or better on the rubric criteria.

*Evidence*: This will show the number of students who scored at each level on the rubric criteria. Here's an example for reporting.

*Table 8. Reporting Results per Achievement Level*

| Rubric | Below (1) | Approaching (2) | Meets (3) | Exceeds (4) |
|---|---|---|---|---|
| Formulate a thesis. | 6 students | 8 students | 14 students | 3 students |

Include this type of detail as an attachment to your results report.

## Selected Response/Multiple Choice or Embedded Questions on Exam or Quiz

When you give a quiz or exam that covers a broader range of knowledge and skills than just what the outcome specifies, you have to identify the specific questions on that instrument that align to the outcome. Your assessment is based not on the students' scores on the exam or quiz, but on the students' scores on the specific items that align with the outcome. In terms of reporting, your assessment method is embedded selected response questions on an exam/quiz.

The criteria may be something like 75% of students will correctly answer 75% of the embedded selected response questions.

Results would show the actual percentage that correctly answered 75% of the embedded questions. The evidence would show which questions on the exam that are aligned to the outcome and the number/percentage of students answering those questions correctly.

### Selected Response/Multiple Choice – Holistic Quiz Aligned with Outcome

In some circumstances, you may develop a quiz where all the questions align with a specific course outcome. A good example is a definitions quiz, where the outcome might be something like "students will demonstrate knowledge of the terms of the discipline." The quiz requires students to define each disciplinary term. In such cases, the whole score may be used to demonstrate attainment of the outcome.

### Pre-Test/Post-Test

This is where you administer a test or quiz early in the term, usually not for a grade, but to ascertain students' knowledge of the subject. The same test is administered again near the end of the term (where it may be part of the grade), and the growth in learning is measured. In this case, often the criteria will reflect the expected change from pre- to post-test rather than an overall achievement level, although both types of criteria may be used.

For example, the performance expectation for a pre/post-test may be written in terms of growth: 80% of students' scores will show at least a 20% improvement over the pre-test.

Pre-Test/Post-tests create a great opportunity for a dual performance expectation: one that shows the overall growth expected, and one that shows the absolute threshold for expected achievement. For example: 80% of students will achieve a 75% or better on the post-test.

The former—growth measurement—shows how far the students have come; the latter, more absolute threshold sets a standard expectation for students completing the course.

### Project-Based Assessment

An individual or team project deliverable is best assessed by use of a rubric, which include criteria that align with the course (or program) outcomes and also include unique course elements, if applicable. If you are assessing the work of the team, then the criteria and results are reported based on team performance, e.g. 75% of teams will score 3 or higher proficiency on the presentation skills portion of the rubric. Similarly, a project may be scored on an individual basis.

### Progressive Skills/Partial Points Assessment

This type of assessment requires student to complete a project or a problem in a specific sequence, each building on the previous in level of complexity. The success, or correctness, of each level is dependent, to varying degrees, on the correctness of the previous. A rubric that identifies each step in the process is used to evaluate student achievement.

## Data Collection and Evidence

NOTE: The subheadings in this section correspond to the subheadings in the previous section.

## Constructed Response

The table below shows how one might report results on an analytical rubric. This affords several opportunities to examine different data points in order to obtain a picture of both student achievement and places where instructional changes may be warranted. By drilling down to this level, we can see how each student performs holistically on the assessment giving us a sense of the level of student achievement with respect to the benchmark expectation that 75% would perform at least at the 2.5 level average for all criteria. We also get a class average, which exceeds the expected proficiency level, mostly because of a few high scorers. We also have an analytic view: the item analysis enables us to see what content (criterion) students has the most difficulty with, which perhaps affords us the most useful information from an instructional standpoint.

*Table 9. Reporting Constructed Response Achievement*

| Name | Criterion 1 | Criterion 2 | Criterion 3 | Avg Score of Each Student |
|---|---|---|---|---|
| Student 1 | 3 | 2 | 4 | 3 |
| Student 2 | 1 | 3 | 3 | 2.3 |
| Student 3 | 2 | 3 | 3 | 2.6 |
| Student 4 | 4 | 4 | 4 | 4 |
| Student 5 | 2 | 1 | 2 | 1.6 |
| Student 6 | 3 | 3 | 2 | 2.6 |
| Average score on each individual criterion: | 2.5 | 2.67 | 3.0 | 2.68 Class Average |
| ***% of students averaging 2.5 or better = 67%*** | | | | |

Additional evidence in support of this assessment would be examples of student work at each level. So, an example of a 4, 3, 2, and 1 score for each criterion (12 samples total) from each section of the course taught. The value of this type of documentation is to achieve greater inter-rater reliability in subsequent administrations of the assessment across multiple sections. A faculty review of several examples with their original scores (and re-scored in a workshop) helps to ensure consistency of academic standards and to validate the instruments. It can also be a good time to review teaching methods and materials.

## Selected Response-Embedded Qs

To evidence this type of assessment, a chart showing something like the following may be used:

*Table 10. Reporting Embedded Question Results*

| Outcome: properties of life and how it has evolved | |
|---|---|
| *Text/number of embedded question(s)* | *#/% correct* |
| Question 1 | 18 (90%) |
| Question 2 | 17 (85%) |
| Question 3 | 5 (25%) |
| Question 4 | 18 (90%) |
| Question 5 | 19 (95%) |

Keeping results with a growing test-bank of questions will provide you with useful evidence for study in both test design and for course review and improvement.

## Selected Response-Holistic

You can keep the same kind of data for this type of quiz/exam as you would for a selected response. The key difference is that when reporting, you are looking at the students' results for the entire test or quiz, rather than on specific questions. Maintaining data on specific questions; however, is extremely useful especially if they are structured differently as in the example above. So, for that example, one might evidence the report with something like this:

*Table 11. Reporting Selected Response-Holistic Results*

| Student | Quiz (20 questions total) | Question | | | # of student who answered correctly (out of 35) |
|---|---|---|---|---|---|
| Student 1 | 11 | Actual Question 1—identify | | | 33 |
| Student 2 | 13 | Actual Question 2—identify | | | 34 |
| Student 3 | 19 | Actual Question 3—identify | | | 31 |
| Student 4 | 20 | Actual Question 4—apply | | | 22 |
| Student 5 | 17 | Actual Question 5—apply | | | 19 |
| Student 6 | 20 | Actual Question 6—apply | | | 28 |
| | | | | | |
| *Class Average* | *16.6* | *Average # of students answering ID questions correctly:* | *32.6 (93%)* | *Average # of students answering Apply questions correctly:* | *23 (66%)* |

*Note: this is made up—obviously, if there were 35 students the chart would be longer. But you get the idea.*

## Pre-Test / Post-Test

This one can get nicely complicated but can show you an awful lot of data. For simplicity's sake, let us say we have four embedded questions on the pre- and post-test. We might keep a chart similar to the one in the previous example for both the pre-test and the post-test. Then, we could do some additional analysis.

*Table 12. Reporting Pre & Post-Test Results*

| Student | Pre-Test (4 Questions) Answered Correctly | Post-Test (4 Questions) Answered Correctly | Question | Pre-Test # of student who answered correctly (out of 6) | Post-Test # of student who answered correctly (out of 6) |
|---|---|---|---|---|---|
| Student 1 | 1 | 4 | Actual Question 1 | 4 | 6 |
| Student 2 | 2 | 4 | Actual Question 2 | 3 | 6 |
| Student 3 | 2 | 2 | Actual Question 3 | 1 | 4 |
| Student 4 | 1 | 3 | Actual Question 4 | 1 | 4 |
| Student 5 | 1 | 3 | | | |
| Student 6 | 2 | 4 | | | |
| AVERAGE | 1.5 | 3.33 | | | |

Of course, as evidence goes, you would supply something like this chart and copies of the actual pre- and post-tests that students submitted. Now for a story: Once there was a History Department that expected 75% of its students to answer 75% of the embedded questions on the exam correctly. Students never did, but maybe 28% of them would. Therefore, the faculty started using a pre- and post-test. They still set a goal of 75/75, but now they could measure the differential from incoming to outgoing and get a better reflection of the impact their instruction had on acquisition of that key knowledge. They set a secondary criterion that students would show a 25% improvement from pre to post-test. Even though the aspirational achievement level was not often met, the improvement differential was usually met. This was, by the way, an intro history course at an open-admissions institution.

## Project-Based Assessment

Rubric criterion associated with outcome reported:

*Table 13. Reporting Project Results*

| Criterion / Level | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Video Project explained the influence of philosophy, religion, socio-political organization on different art forms. | 0 teams | 0 teams | 4 teams | 1 team | 1 team |

Additional evidence would include a copy of the full rubric filled out for each team. If available, artifacts such as a video recording of a team's presentation or their handout materials might also be included or kept on file by the instructor.

## Progressive Skills/Partial Points Assessment

In this type of assessment, students may be given some credit for a portion of an answer. The expected achievement may be X% score at a level 3 or higher on the specific skill or problem-type (see Table 14).

*Table 14. Reporting Results for Progressive Skills*

| **Rubric** ***(number of points)*** | **Number of students achieved** |
|---|---|
| 1. Draw a circuit diagram including electrical components at different times (0-10 pts.) | 2 |
| 2. Attempted with some transient state analysis aspects including initial conditions of the electrical network (11-18 pts.) | 7 |
| 3. Attempted with most transient state analysis aspects including the differential equation of the electrical network (19-23 pts.) | 15 |
| 4. Aspects of the correct work is shown including the damping ratio and angular frequency of the electrical network (24-30 pts.) | 15 |
| 5. Most of the aspects of the correct work is shown (31-35 pts.) | 4 |

***Note**: this rubric works as both an assessment tool and a grading tool because points are associated with each level. Thus, you can report your assessment in simple term—e.g. achieve a 3 or higher on rubric; but distribute the points as they fit with the exam or course in which the assessment is administered.*

# Evidence, again

Evidence comes in two forms for our purposes here at Florida Poly: raw results and student artifacts.

## Raw Results

This evidence is the material used to arrive at the result that is reported for the assessment. It often also includes the instrument for assessment. So, as examples in the previous section show, if your result reported is 70% of students (7/10) achieved the expectation, then your data would show the individual scores (names redacted). As it relates to a rubric, the evidence should show the number and percentages at each level, for each descriptor, as outlined on the rubric. Again, the previous section illustrates much of this in different ways.

## Student Artifacts

There is an ongoing question about how much student work should be saved for assessment. The answer is that it depends. Put another way, you must first answer why it is you are keeping student artifacts in the first place. If it is because your accreditor wants to see them, then that is one thing, but not very meaningful. If, on the other hand, your answer is that when we evaluate assessment results, we like to see evidence of student work to formulate a more complete understanding of the learning that is or is not taking place, then you're operating in the right spirit of this matter. However, let's spare you the theory for the moment and give you a straight answer.

Keep enough evidence to demonstrate that you have applied your assessment criteria accurately: typically, this comes in the form of a high, medium, and low result, and sometimes, enough that makes up a small sample of the course, as low as 3%.

If, as a program, you collaborate and agree that in all cases, you will require that students submit assessments in CANVAS and that faculty grade assessments in CANVAS, then you will have all the evidence you need in the repository. As an instructor, you can just report your results and provide your raw data each term to your department's assessment coordinator or department chair. When the time comes around for the program to evaluate the PLO, they can return to the Canvas archive to retrieve examples. Your department, however, may require that you include this evidence in your course folder (more detail below).

## Review Cycle and Improvement Process

The following illustrates the assessment and improvement cycle useful for most programs. Some overlap occurs. This process enables the ongoing assessment, review, and improvement of all aspects of the program, from relatively modest, or easily implementable changes, such as to textbooks, to larger, more programmatic changes such as to course offerings or to the assessment system itself (standards, methods, and so on).

- Year - 1
    - Fall assessment conducted and reported
    - Spring assessment conducted and reported
    - Year-end report compiled, reviewed, and small changes readied for implementation for fall Year - 0
- Year – 0
    - Fall assessment conducted and reported, minor changes from Year - 1 implemented
    - Ongoing discussion and curriculum changes, based on Year – 1 report, submitted, along with proposed changes to the assessment system, if needed.
    - Spring assessment conducted and reported
    - Fall curricular/assessment decisions finalized/approved.
    - Year-end report compiled, reviewed, and small changes readied for implementation for fall Year +1
- Year + 1
    - Fall assessment conducted and reported, minor changes from Year – 0, and major changes implemented from Year – 1 process.
    - Ongoing discussion and curriculum changes, based on Year – 0 report, submitted, along with proposed changes to the assessment system, if needed.
    - Spring assessment conducted and reported
    - Fall curricular/assessment decisions finalized/approved.
    - Year-end report compiled, reviewed, and small changes readied for implementation for fall Year + 2

For programs with numerous Learning Outcomes, such as ABET-seeking or accredited programs, the program may elect to evaluate only a portion of the outcomes in a given year. So, for example:

- Year - 1: assess and evaluate outcomes 1-2
- Year 0: implement changes related to 1-2 and evaluate 3-4
- Year + 1: implement changes related to 3-4 and evaluate 5-6

The important point to note here is that outcomes assessment is ongoing, but the evaluation process is periodic. The advantage of this is that a program can focus in on the detail of a few outcomes and study multiple terms' worth of results before deciding what changes should be made. In the above example, I-K are assessed in Y-1, Y 0, and Y+1, giving the program five to six semesters' worth of data on each outcome to review and determine what changes are necessary. A cyclical approach fosters evaluation that is based on a more longitudinal data set and enables focus on a few outcomes at a time, which makes the workload of the process more manageable.

Again, though, it must be stressed: outcomes are continuously assessed. It's the evaluation that is periodic.

## Faculty and Program Responsibilities for Assessment and Evaluation

Program quality and integrity is the responsibility of all teaching faculty; therefore, it is the responsibility of program faculty to be familiar with the program's PEOs, PLOs, and key courses where outcomes align to PLOs. As mentioned above, each faculty member is responsible for some level of assessment of his or her courses. This information is used to build course folders to support program longevity and "program-memory." Contents of these folders may be evaluated by a departmental committee whose task is to determine how effective the course is in delivering on its outcomes as well as program outcomes (see Appendix E).

### Assessment & Evaluation Defined

Recall from earlier in this document (p.11) the following definitions:

- **Assessment**, provisionally, means the administration of a tool/method for gathering information on student learning, the collection of that information, and the reporting of it.
- **Evaluation** refers to the process of reviewing assessment results and making changes for the purpose of continuous improvement. It is usually done among multiple program faculty and sometimes external stakeholders. Evaluation is where the results of assessment inform decision-making about how to improve the program.

### Course Folders: Assessment and Evaluation

As a best practice and a requirement for ABET-accredited (and hopeful) programs, the maintenance of course folders is highly recommended. A course folder is the archival evidence of how a course was designed, delivered, assessed, and includes examples of how students performed. An ideal course folder will enable a colleague to examine it and have a fairly complete idea of what went on in a given course in a given semester. From a program quality and control standpoint, the course folder is both a record of course delivery and a subject of evaluation for continuous improvement. A typical responsibility associated with the course folder is the assessment of course learning outcomes or, at a minimum, a course memo. While the precise contents of the course folder may vary, in general it should include the following:

- Course syllabus
- Assignments, Exams, Quizzes
- Evidence of student achievement of each CLO (student artifacts: high, middle, low as evidence)
- Student work (additional student artifacts)
- Course Learning Outcomes Assessment Report (see sample Appendix E)
- CLO assessment evidence (raw data)
- Handouts and other learning tools

Presently, course folders are available on the M: drive in Institutional Effectiveness (see *Fig.3*, below). Each program has its own folder with multiple subfolders including a "Courses Folder." In this location, you will

find a folder for each course in the program and within that folder, different academic terms. Each of which (mostly) contains some or all of the information listed above.

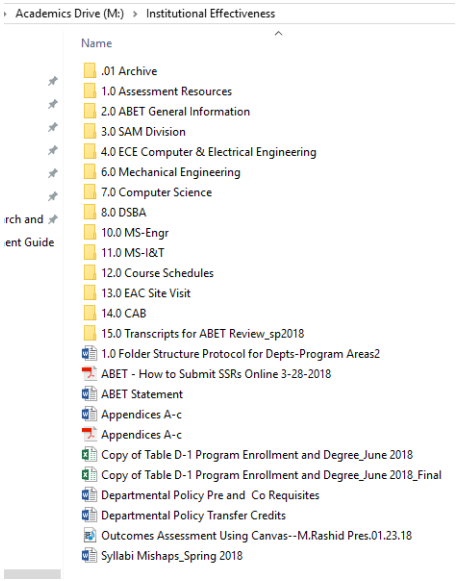



*Figure 7. M:Drive*

Department chairs, in consultation with the faculty and, if present, a departmental curriculum/ assessment committee will determine the precise responsibilities for assessment and course folder completion in line with the program's overall assessment plan and best practices. Responsibilities may change from course to course, term to term, depending on the assessment cycle and critical program needs, but in general, faculty should expect to contribute to assessment and course and program evaluation on a regular basis.

### *Course Evaluation*

As a routine matter of departmental and program business, course folders will be evaluated on periodic basis as determined by the department or program's assessment schedule. An example of a course evaluation form is included in Appendix F. In general, course evaluation involves two things: 1. a determination as to whether the course folder is properly populated and assessments conducted and evidenced; and 2. an evaluation and recommendation as to whether the course is appropriately meeting program requirements for content, rigor, and quality. Courses should be evaluated by at least two program faculty exclusive of the course instructor.

## PLO Evaluation

Course-level outcomes (CLOs) that are aligned to Program Learning Outcomes (PLOs) must be gathered together on a PLO assessment and evaluation form (see Appendix G). This form gathers results from relevant Performance Indicators (PIs; e.g. CLOs), presents the results, and provides space for faculty to evaluate the quality of attainment, the appropriateness of assessments, rigor, and content, and make any recommendations for improvements.

The PLO assessment and evaluation forms are done per PLO. This means that each PLO has its own form and the relevant data and artifacts are gather in PLO folders in the M-drive alongside the folder for course folders.

## Program Assessment Full Report

Finally, each PLO form is gathered together, along with other PLO assessment data and information, to form a final PLO report or "Program Assessment Full Report Form." This template is found on the M- drive here: M:\Institutional Effectiveness\1.0 Assessment Resources\2.0 Assessment Forms (along with other forms noted in this manual).

Other assessment data may include major field exams, Advisory Board rubric evaluations of student projects, and indirect measures such as a graduate exit survey, internship evaluation, focus group report, and so on.

The final PLO report is a multi-page document that includes several items relevant to the understanding of the program, including, but not necessarily limited to the following:

- Data specific to the program but from a data set common to all (e.g. enrollment/level, and so on);
- PEO/PLO alignment map
- PLO/CLO (PI) curriculum map
- Discussion of activity related to Program Educational Objectives (PEOs) and any related assessment results;
- PLO reports (compile all PLO evaluation forms into one report).

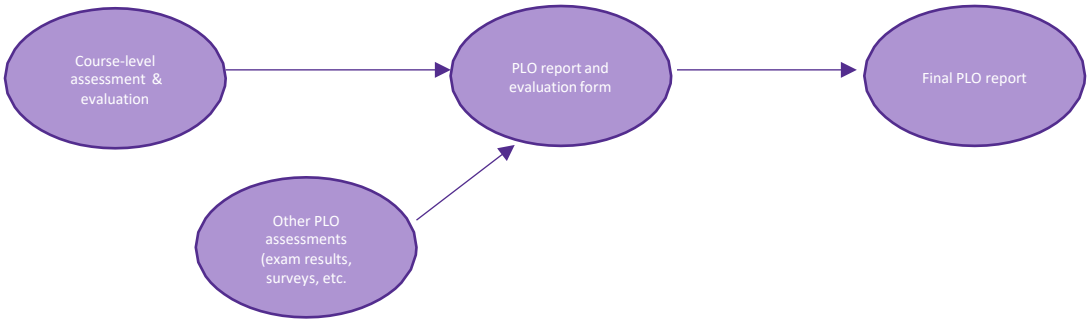



*Figure 8. Program Assessment & Evaluation Reporting Sequence*

These annual reports provide valuable insight into program effectiveness and student learning. They serve as evidence of robust assessment and evaluation activity and meet compliance expectations for both professional and regional accreditation.

# Administrative Unit Assessment

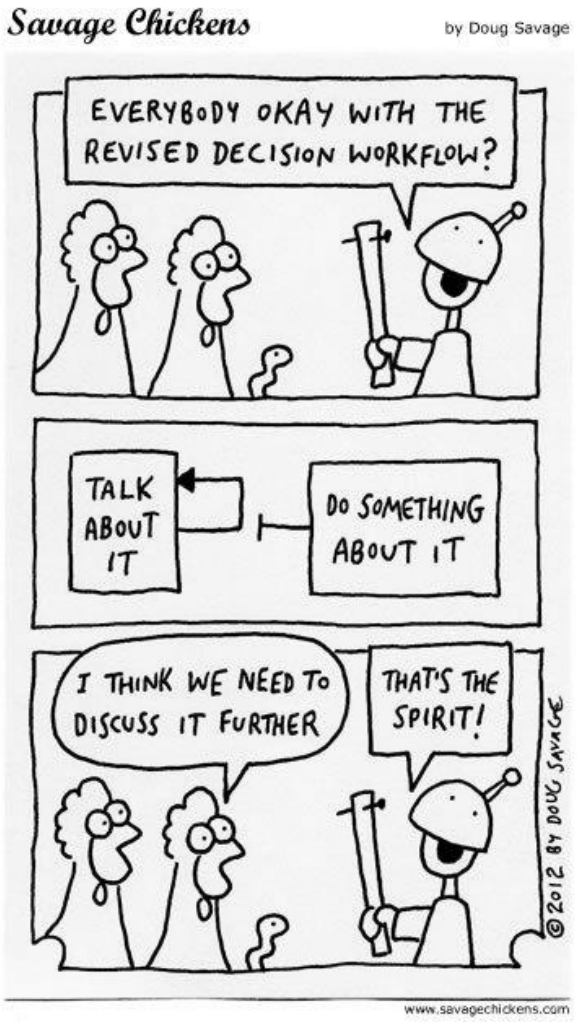



*Figure 9. Savage Chickens*

## Administrative Units Defined

"Administrative units" is a broad term meant to encompass all budget-entities with administrative supervision over one or more areas, exclusive of academic degree programs. So, for instance, the Office of Research Services is a unit, as is the Office of Student Affairs, which oversees several units including the Academic Success Center, Housing, Student Life, and so on.

As a basic expectation, from an accreditation reviewer's standpoint, each unit to which a budget is attached would submit assessment on its performance to demonstrate the effectiveness of that budget allocation. This would mean that offices such as Admissions, Financial Aid, and so on would develop their own assessment plans (if budgeted separately) and those would "roll up" to the sub-division plan developed by the Vice Provost's office for that sub-division.

At Florida Poly, and at many other institutions, particularly in our size-range, this "expectation" is not a hard and fast rule by any means. While an umbrella unit, such as Student Affairs, may encompass several smaller units each with their own budget or budget line, the umbrella unit may choose to develop a plan that targets one goal and two or three key objectives associated with each of its sub-sets. In the end, one report comes from Student Affairs, but it "accounts" for all major budgetary areas within Student Affairs, which, not coincidentally, are tied to the primary operations (missions) of those sub-units.

In other words, while it may be useful for each individual office to develop its own plan, in some cases, it may be equally useful for a larger unit to develop one plan that encompasses all of its sub-units. Typically, personnel at the Director-level and above coordinate with the Director of Institutional Research and Effectiveness to determine the best way to align the unit's assessment operations.

While it is important to keep accreditors' expectations in mind, the best organization is the one that enables the institution to assess well its most important operations—the ones that it spends the most of its time and money on and aligns closest with the mission. The reason that this typically involves, directly or indirectly, every unit is that every unit is in some way responsible for advancing the University's mission.

## Annual Assessment Planning and Strategic Planning

Strategic planning takes place at an institutional level and sometimes at a division or program level. It typically does not occur at an individual unit level as units are typically the tools of a larger administrative structure—tools to effect a strategy rather than strategy-makers. This is important because individual units have two overarching considerations in developing their goals and objectives. One is their own mission, or function, within the institution (e.g. to admit students); and, the second is to measure their progress or impact on division-level or institutional strategic initiatives or metrics. Often, at the division level and most certainly at the institutional level, the goals and objectives are multi-unit operations, sometimes crossing traditional institutional boundaries between divisions. In some strategic plans or phases of a strategic plan, a given unit may not have any particular role. That does not mean that the unit's work is not important. It still has a mission, a budget, and a function to perform. This is why the first step in good assessment planning begins with writing (or reviewing) your unit's mission statement.

## Foundations for Effective Assessment

In this phase of the document, we will lay out the elements for building a solid assessment system, a plan, really, for facilitating your unit's effective operations.

## I: Writing (or Reviewing) the Mission and Vision Statements

Each unit has an established mission statement that outlines its role, scope, and purpose. It should also have a vision statement that describes what the unit aspires to be or to achieve.

- Mission Statement: A brief statement that identifies the major purpose of the department or unit. This statement describes who you are, what you do, and for whom you do it.
- Vision Statement: A concise, future oriented statement that paints a picture of where the department or unit aims to be (forward direction; e.g. to become a nationally recognized Academic Support Center).

Unless your unit is a brand-new creation, it probably already has mission and vision statements that guide the development of unit objectives. In this case, it is good practice to review the unit's mission and vision each year during the planning phase of assessment to verify that it still accurately represents the work of the unit and its role within the institution.

The following rubric can assist you in writing or reviewing your unit's mission statement:

| **Mission** (Division/School/Dept./Unit | **CHECKLIST** | **SAMPLE MISSION STRUCTURE** | **CONSTRUCT YOUR MISSION** |
|---|---|---|---|
| **DOES IT ADDRESS?**<br>• Who we are? /Why does the unit exist?<br>❑ Name of your division, school, department, unit<br>❑ Identify the overall purpose of the unit<br>• What do we do? /What does the unit do?<br>❑ Your unit's primary purpose and formal requirements<br>❑ Identify stakeholder expectations, requirements, services, and products provided by the unit<br>• For whom do we do it? /Who does the unit serve?<br>❑ Reflect the needs of stakeholders or customers of your unit<br>❑ Identify the major stakeholders of the unit | ❑ **Teaching/Learning** *(Skills/Knowledge)*<br>❑ **Research/Scholarship** *(Discovery/Innovation)*<br>❑ **Civic Collaborative** *(Service/Partnership)*<br>❑ **Administrative or Educational Support Service** *(e.g. Customer Service, efficiency)*<br>❑ **Diversity & International Context** | "The mission (of your unit name) is to (your primary purpose) by providing (your primary functions or activities) to (your stakeholders)"<br><br>(You may add additional clarifying statements)<br><br>**Note**: the order of the pieces of the mission statement may vary from the above structure | |

For an additional perspective, I highly recommend reading this short article called "The Eight-Word Mission Statement" from the *Stanford Social Innovation Review*. I'm not saying you need to keep your unit's mission statement to eight words, but this article provides some useful thoughts for homing in on what's essential.

### *The Vision Statement*

A vision statement describes the unit in a future, successful state. It is meant to be inspirational and aspirational. What if, for example, we achieved all of our goals and delivered on our mission beyond our expectations? A good vision statement is both comprehensive and concise, describing in a few short words or phrases, what the unit hopes to be in the future. See the above article. While an "Eight-Word" mission statement may be a bit too restrictive for most units in a University, an "eight-word" vision statement is definitely attainable and a good model to follow.

## II. Writing Unit Goals

Unit goals are ways of breaking out (parsing) the language of the mission statement. Each major purpose of a unit should, ideally, have a goal associated with it. Goals are often aspirational or longer-term statements and describe a generic action or outcome toward which we strive.

Let's look at an example:

- Mission Statement: deliver a high-quality dining experience to all members of the campus community.
- Goal: To provide a wide selection of dining options at peak and non-peak times throughout the week.

Notice the mission statement is short and open-ended, but easy to remember. Moreover, we can define "high-quality dining experience" in many different ways. The goal above defines it in terms of dining options—this may be through menu selection or venue or both. Other goals may focus on quality of ingredients, ease of access and availability (particularly if catering services are included), cost-benefit to customers, and, of course, satisfaction of customers. There may be other considerations as well, but the point is that by articulating one's goals, one further defines the scope of the mission statement and begins to give it measurable meaning—that's where objectives come in.

## III: Writing Measurable Objectives

In many ways, objectives are the most important piece of good assessment. Typically, when we write missions and goals, we think in broad terms about what we are and where we want to be. But when it comes to writing an objective, we need to think in terms of tangible evidence that demonstrates that our efforts have resulted in something. Not just, be the best, but score in the highest percentile. What, in other words, will definitively show the impact of the effort expended?

So, when writing objectives, think in terms of the outcomes, or effects, sought from the activity the objective describes. Not just, what do I want to see at the end, but how different will it look from where we are now?

### *Types of Objectives*

As a matter of good IE, measurable objectives come in three types: outcome statements; process statements; and satisfaction statements.

**Outcomes** measure the result of some activity: we do X and Y occurs. The measurement is not based on the action taken but on the intended affect relative to a baseline or benchmark likely to result from the action.

**Process** objectives focus on the quality of the service or function performed. Rather than the intended effect, they measure improvement in processes such as reduced cost, greater accuracy, efficiency, or other desirable outcomes.

**Satisfaction** objectives are self-explanatory: you hope that your services results in a high-level of satisfaction among your clients or stakeholders.

For most administrative units, especially those in a service capacity, it is good practice to have at least one objective related to improved or quality satisfaction. The table below provides more definition for each of these types of outcomes as well as examples.

| Statement Type | Description | Example |
|---|---|---|
| ***Outcome Statements*** | Focused on how the services or educational support have impacted/changed a student in terms of knowledge, skills, or attitude/values) | 1. 70% of students requesting access to library resources will learn to use online library tool.<br>2. 80% of graduates seeking employment will have the ability to write an acceptable career resume.<br>3. 75% of students seeking summer internship opportunities will be able to access and use online experiential learning search tool provided by Career Center. |
| ***Process Statements*** | Focused on desired quality of key functions and services (i.e. timeliness, accuracy, efficiency, volume, responsiveness, compliance, etc.) | 1. The University Police will fulfill 95% of escort requests within 15 minutes of receiving the request.<br>2. Industry Partnership will convert 75% partners to internships by 2017-18.<br>3. Registrar's office will submit 90% of transcript requests electronically by 12/31/2014. |
| ***Satisfaction Statements*** | Focused on levels of overall satisfaction with the services provided | 1. 80% students using library resources will be satisfied with library circulation service.<br>2. Increase student satisfaction with the overall online registration process from 70% to 80% by AY 2013.<br>3. 80% of graduates using Career Center will be satisfied with their job advisement services. |

### *Make them SMART*

A common method for writing objectives is to make them SMART! This mnemonic helps you to construct good, measurable objectives. Consider each letter:

- **S**pecific—it should identify a target population and say what will be accomplished.
- **M**easurable—it should clearly indicate some comparable results.
- **A**chievable—it should be something your unit can actually do.
- **R**elevant—it should address the goal that it supports.
- **T**ime-bound—explicitly or implied, it should indicate the period of time in which the result will occur, e.g. when will the objective be met?

There are many ways to write SMART objectives. As you write and revise, use the following criteria to guide you:

| Specific | Measurable | Achievable | Relevant | Time-bound |
|---|---|---|---|---|
| Who is the target population? What will be accomplished? | Is the objective quantifiable? Can it be measured? How much change is expected? | Can the objective be accomplished in the time-frame with the available resources? | Does the objective address the goal? Will the objective serve as evidence of realizing the goal? | Does the objective provide some time-frame when it will be met? (e.g. year-over-year comparison) |

### *Number of Objectives Needed*

Each goal should have at least one objective, and, in general, there should be at least three objectives per unit assessment plan. At the upper-end, any more than five or six, at most, risks a loss of focus and the ability to achieve any of them at a truly satisfactory level. Remember, you may come up with dozens of things you would like to measure, but they do not all have to be measured in a given year. Save them for the next year's assessment cycle.

## IV: Identifying the Appropriate Means for Assessing Objectives

Now that you know what you want your results to be (and presumably know how to bring them about), you have to determine a means of measuring that impact that can be documented and used as proof of your success (or failure—that's okay, too).

The "means of assessment" includes the **assessment tool** (an instrument like a survey), the **method** (how the survey is scored, e.g. Likert scale); and **criteria for success** (the level of achievement expected, e.g. 90% satisfaction with…).

### *General Considerations*

When identifying the appropriate means of assessment, keep in mind the following:

- The assessment tool must gather evidence related to the intended objective
- The assessment method should provide useful information regarding the achievement of expected results or levels of performance
- Each objective must have at least one assessment measure; however, it is best to use a triangulation approach or multiple means of assessment when feasible
- The timeframe for each assessment method should be indicated (each semester, annually, in alternate years, etc.)
- Direct or indirect (e.g., survey) assessment measures can be used; however, all objectives must have at least one direct measure

### *Assessment Tools*

There are numerous assessment tools available, from off-the-shelf varieties such as nationally normed surveys or standardized tests to in-house developed instruments or even a department's own record-keeping process can serve as tools for measuring results. Assessment tools can be described, however, in one of two ways:

- **Direct Assessment Measures**: Direct assessment measures provide data that directly correlates with the achievement of the expected objective outcomes. A direct measure explains the specific activity that will demonstrate the extent to which an objective has been accomplished and provide information that may be used to make improvement related decisions in ensuing years.
- **Indirect Assessment Measures**: Indirect assessment measures gather opinions or perceptions about an objective outcome. These measures are useful when paired with direct assessment measures.

All objectives must have at least one direct assessment measure.

### *Method*

The method of assessment can be something concrete, e.g. the Likert scale or a rubric, but it usually more than just this: it is the explanation as to how the tool serves as a measurement of the objective. A brief description of the rubric or scale or other evaluation instrument will usually suffice to show how the tool functions.

### *Establishing Criteria for Success*

The Criteria for Success is the benchmark or target and it serves as an indicator for the expected or overall levels of accomplishment. If you have written your objective well, then your criteria for success is already included in it, so you do not have to re-think it. In the planning form, you essentially restate the criteria established in the objective.

Here are some guidelines for developing clear, effective criteria for assessment:

- State the criteria/benchmark in terms of percentages, percentiles, averages or other quantitative measures.
- The Criteria should have a specific target number that indicates the level of accomplishment. This can include a level of proficiency, or number or percentage of people, activities, or items, or a combination of the two.
- In some cases, it may be useful to include the raw number so that the percentages have a context.

**EXAMPLE 1**: Students wait time for advising will decrease 20%.

**EXAMPLE 2**: At least 75% of the students living in the resident halls will report a level of satisfaction with the overall experience at a 3 (Satisfactory) or above on a 5 point scale.

Establish a reasonable benchmark or target. Depending on the nature of the objective, using absolutes such as 100% or "All" may be necessary. In most cases, however, targeting absolutes is unwise. Instead, criterion should be based on baseline/benchmark data, national or peer-group norms, or other rationale. The important thing, however, is to remember to include your rationale in your planning document.

## V: Data Collection and Analyzing and Interpreting the Findings

This is the fun part where you start to see the results of your efforts.

### *Data Collection*

Once you have established the Means of Assessment for all objectives, develop a timetable for data collection.

The schedule should include:

1. All assessment tools
2. Where the data will be collected from
3. When the data will be collected
4. Who is responsible for collecting the data

Remember:

- Data can be collected as soon as it becomes available even if the analysis of the data will take place at the end of the semester or at the end of the academic year;
- To ensure the integrity and validity of the data used in the assessment the same data should be collected at the same time each semester/year;

- Data should be collected, retained, and summarized in ways that facilitate its use;
- ONLY collect data that is useful and will provide information that can help to improve programs and services.

### *Data Analysis and Interpretation*

Data Analysis involves reviewing the data to determine whether the intended results have been accomplished. In the analysis phase, the goal is to identify patterns in the data and gain an understanding of what has occurred. Data analysis can take place once the appropriate data is collected, or at the end of the assessment period.

In the interpretation phase, the goal is to make meaning of the results and determine the significance of the result for the program or services provided. In other words, the purpose of data interpretation is to determine how the data that has been analyzed can be turned into information for improving a program or services.

Baseline Data: If the department/unit has previously measured an objective, this data should be used as the baseline for setting targets/benchmarks for the next year.

When analyzing the data, answer the following questions:

- Were the targets met?
- Are there any repeating or common patterns in the data?
- Could the results be improved?
- Are the objectives and/or measures useful?

To go a step further and interpret the results or determine the meaning and application of the results, answer the following questions:

- Why was the target met or not met?
- What impact do these results have on the department/unit?
- How can this information be used to improve the department/unit?

## VI: Communicating Results and Applying the Findings for Improvement

The results of the assessment plan should be included in the final assessment report. The report should clearly state whether the program objectives are achieved. For example, the results can be used to demonstrate that the program has achieved the intended outcomes at the established performance level, or that the intended outcome was not achieved. If the outcome is not achieved, an action plan to improve the program or service and facilitate the achievement of the objective should be developed and included in the final report.

The final phase in the assessment plan is often referred to as **Closing-the-Loop**. Here the identified action to improve the program or services or the overall department/unit is implemented. The impact of the changes made should be evaluated and reported in the next assessment cycle to close-the-loop.
If the action taken does help the program achieve the desired improvements or the intended objective outcome, then further action toward improvement should be determined and implemented at the end of the assessment cycle.

Once the report is created, it should be distributed to all the appropriate administrator(s) and shared with constituents within the institution through formal and informal avenues in a timely manner. Assessment results can be shared in the following ways:

- Faculty & Staff Meeting

- Opening Institutes/Workshops
- Department Website
- News Letter
- Interdepartmental Memos
- Institutional Assessment Day

## (Semi-) Final Note

Assessment is not an add-on to your regular departmental duties. If approached this way, it is meaningless. Rather the assessment process is an opportunity to step back and reflect on the shape and purpose of your unit. By fleshing out what among all your unit's responsibilities is most important and making the assessment of that activity meaningful, it can enhance your job satisfaction and even facilitate unit morale. Taking assessment seriously will enable you to look at meaningful results and make decisions based on evidence and with a clear purpose in mind.

## Annual Cycle of Assessment and Reporting

As noted in the introductory section to this document explains, the annual cycle typically begins and ends on July 1 and June 30th, respectively. Reporting, planning, and budgeting occurs throughout:

1. Planning—typically a winter process (Dec – Feb 15)
2. Budgeting—spring (Jan – March)
3. Mid-year Assessment—by February 1
4. End-of-Year Assessment—July – September (final Sep 30th, but earlier in reaffirmation years).

The year-end report covers the previous academic year. The subsequent planning phase is a look at results from the prior year, but also progress attained at the mid-year point. Planning is for the next academic year. The mid-year assessment pertains to the current-year plan.

*Table 15. Admin Assessment Cycle*

| | Su (-1) | Fa/Wi (-1) | Sp (-1) | Su (1) | Fa/Wi (1) | Sp (1) | Su (+1) | Fa/Wi (+1) | Sp (+1) |
|---|---|---|---|---|---|---|---|---|---|
| Year + 1 (Next Year) | | | | | Plan Y+1 | Plan/Budget Y+1 | Implement Y+1 | MYR Y+1 | Cont. Y+1 |
| Y = (Current Year) | | Plan Y | Plan/Budget Y | Implement Y | MYR Y (Dec/Jan 15) | Cont. Y | Wrap-up Y | Year-end Report Y | |
| Y – 1 (Last Year) | Implement Y-1 | MYR Y-1 | Cont. Y-1 | Wrap-up Y-1 | Year-end Report Y-1 | | | | |

Su = summer (Jun – Aug)
Fa/Wi = fall/winter (fall-term, Sep - Jan-Feb 15)
Sp = spring (spring term, Jan – May)
MYR = Mid-year report
*Current year shows one full cycle from plan to final report; the green highlight shows the overlap across years, so that the spring Y+1 planning and budgeting, Y1 mid-year report, and Y-1 year-end reports happen within approximately the same time-frame.*

## Examples

In the appendix, you will find a report and plan example. The examples are presented with a results-report first and the planning-report second. This is because planning should be based, at least in part, on the previous cycle's results. Thus, in order to give a clear picture of how the results-planning process works, we look at a year-end report example, followed by the next cycle's plan. While this example is based on an actual plan, it has been modified for illustrative purposes.

# Appendices

*Note: Assessment forms and template are available on the network at M: Institutional Effectiveness.*

# Appendix A. General Education Assessment

## General Education Value and Purpose

The Association of American Colleges and Universities defines general education (a component of the broader idea of liberal education) as follows:

> *That part of a liberal education curriculum that is shared by all students. It provides broad exposure to multiple disciplines and forms the basis for developing essential intellectual, civic, and practical capacities. General education can take many forms, and increasingly includes introductory, advanced, and integrative forms of learning.*

General education functions best when it is viewed as a program rather than a menu of courses from which students are required to choose X number of hours. As a program within a broader degree- seeking path, general education has its own purpose and outcomes that align with and enrich those of the degree path a student pursues.

So, general education serves two purposes:

1. The development of “essential intellectual, civic, and practical capacities”;
2. Preparation for success in the student’s chosen degree program.

## The General Education Program at Florida Poly

The General Education program is foundational to Florida Poly’s mission to "prepare 21st century learners to become innovative problem-solvers and high-tech professionals in STEM fields." As such, the program's mission is to prepare students for their majors and beyond. It is designed to foster a solid foundation in mathematical and scientific reasoning essential to STEM programs. At the same time, through exposure to methods of inquiry and expression in the arts, humanities, and social sciences, the program fosters intellectual curiosity and life-long learning in preparation for engagement in professional and civic life. The University recognizes that tomorrow's leaders must be technically proficient, ethically-minded, and possess effective communication skills to affect positive and lasting change in the world. Specific courses in support of the general education program can be found in the University’s academic catalog, available at http://catalog.floridapoly.edu/.

### *Competencies, Outcomes, and Courses*

The University faculty has developed student learning outcomes that support the following General Education competencies:

1. **Communication Skills** - Students will demonstrate the ability to communicate effectively and to analyze communication critically in both oral and written mediums.
2. **Critical Thinking Skills** - Students will demonstrate the ability to formulate problems and comprehensively explore and evaluate issues, ideas, artifacts, and information before reaching a conclusion.
3. **Ways of Knowing in the Arts and Humanities** - Students will understand how questions are posed and how insights and creative responses to them are formulated in the Arts and Humanities.
4. **Ways of Knowing in the Social and Behavioral Sciences** - Students will understand how questions about individuals and social groups are posed and addressed through research, experimentation, and analysis in the Social and Behavioral Sciences.
5. **Mathematical Reasoning** - Students will develop mathematical skills that are crucial to success in all STEM fields.
6. **Scientific Reasoning** - Students will demonstrate an understanding of the scientific method and use it to explain the natural world.

### Communication

Students will demonstrate the ability to communicate effectively and to analyze communication critically in both oral and written mediums. Students who complete the communication skills requirement will be able to:

- Analyze, interpret, evaluate, and synthesize information to support an argument or conclusion.
- Choose a topic and develop it for a specific audience, purpose, and context.
- Employ the conventions of standard American English.
- Identify and apply standards of academic integrity, including the use, attribution, and documentation of source material in an appropriate style.

### Arts and Humanities

Students will understand how questions are posed and how insights and creative responses to them are formulated in the Arts and Humanities. Whether through philosophical (legal, ethical), literary, artistic, or cultural studies, students who complete the ways of knowing requirement in the Arts and Humanities will be able to:

- Reflect critically on the human condition.
- Interpret and explain theories and methods behind forms of human expression.
- Consider the multidirectional impacts of the relationships between individuals, cultures, and the institutions, and technologies they create.

### Social Sciences

Students will understand how questions about individuals and social groups are posed and addressed through research, experimentation, and analysis in the Social and Behavioral Sciences. Students who complete the ways of knowing requirement in the Social and Behavioral Sciences will be able to:

- Apply appropriate disciplinary methods and theories to the analysis of psychological, social, cultural, political, and economic issues or problems.
- Describe how political, social, cultural, and economic institutions influence human behavior.
- Describe how individuals interact and behave in political, social, economic, and psychological environments.

### Mathematics

Students will develop mathematical skills that are crucial to success in all STEM fields. Students who complete the Mathematical Reasoning requirement will be able to:

- Demonstrate fluency in mathematical concepts.
- Interpret quantitative data to derive logical conclusions.
- Apply appropriate mathematical techniques and problem-solving strategies to produce valid results.

### Natural Sciences

Students will demonstrate an understanding of the scientific method and use it to explain the natural world. Students who complete the Scientific Reasoning Requirement will be able to:

- Critically examine and evaluate scientific observation, hypothesis, and model construction.
- Apply appropriate scientific models and methods in problem solving.
- Use the scientific method to explain the natural world.

## A Curriculum Note

Florida Poly's general education curriculum is unique in a few ways. For one, math and science start at a higher level than at most colleges or comprehensive institutions. So, from an institutional values standpoint, the question is what level of achievement is most appropriate to a Polytechnic University? And where and how do we measure this achievement that best demonstrates that as an institution, we

are delivering a high-quality education that produces students who perform well above average in these areas?

Another aspect of our general education curriculum, as it currently integrates with our academic programs is that it is spread out throughout the student's four years. Because we have a common freshman year program that is designed to acclimate students to foundational concepts for succeeding in Florida Poly's programs, many of the courses (humanities and social sciences) that students at other institutions would take in their freshman or sophomore year do not occur in plans of study until the junior and senior years. This is an important aspect to our technical and scientific curricula. Rather than putting these courses at the beginning, where they are something to get through, by positioning them later in the program they become a rest stop to reflect on human behavior and the impacts of the science and technology students are learning to develop.

## General Education and Accreditation

The University's accrediting agency, the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) requires that its member institutions assess student achievement in the general education program. This means that the program must

- have a general education mission statement;
- define competencies and outcomes;
- identify institutionally-acceptable levels of achievement for those outcomes and competencies;
- assess outcomes through direct (course-level assessments) and indirect means (surveys);
- report results;
- engage in continuous improvement to impact student achievement.

To this point, it has only been a requirement that institution's report student achievement, but as with degree-granting programs, it is now incumbent upon general education programs to analyze and evaluate results and make changes for the purposes of continuous improvement.

## Assessing General Education at Florida Poly

A very brief history of our very brief history: In the beginning, faculty assessed all student learning outcomes with a given general education course and reported those results to the Office of Institutional Effectiveness, which reviewed the results and aligned them to the appropriate competencies in developing a general education assessment report. This report was returned to the faculty or coordinators responsible for general education for final review and comment before becoming the official mid-year or year-end report.

Faculty who had been tasked with coordinating general education undertook a mini-program review in summer 2016, which results in changing some of the competencies and other aspects of the assessment of the program. After reviewing results, they also decided that it was not productive to assess every learning outcome in every course, so each discipline area identified course-level outcomes that they thought aligned best with the outcomes and competencies and focused assessment on only one or two course outcomes rather than all.

Another decision that came out of this effort was that it was not necessary to assess for program achievement in every course. As stated previously, our requirements for mathematics start at a much higher level than they do at most institutions because our course have to support core STEM disciplines. Thus, the standard for an acceptable level of mathematical reasoning at Florida Poly likely would be higher than at a comprehensive or non-STEM institution. For a discipline such as mathematics, the standard may be set with more focus on preparation for the degree program than for acceptable functioning in civil

society. The same may be said of the Natural Sciences courses. Given that our mission is to graduate leaders in advanced science and technology fields, our baseline level of attainment for competency in areas of mathematics and natural sciences ought to be at a recognizably high level.

## Creating Balance—Proficiency vs Achievement and Institutional Standards

Agreement as to what constitutes student achievement for each outcome/competency comes down to the faculty in the discipline agreeing upon what serves as assessment, how proficiency is measured, and what stands for proficiency on the assessment. Florida Poly faculty have agreed to the following as a way of determining student achievement for general education competencies:

**Proficiency** refers to the score that a student must obtain on a given assessment that shows he or she has met the expectations for the outcome. This is up to the faculty in a given program. Proficiency levels for Calculus may be very different than they are for psychology. Thus, calibrating proficiency to the program/course/assessment is critical to creating an accurate, meaningful standard for success.

However, as an institution, we need to have some threshold for acceptable levels of proficiency. Toward that end, the faculty have agreed that the **benchmark for achievement** is set at 70%, where if 70% of the students assessed meet the proficiency level, then the competency is achieved successfully.

That works on a per-assessment basis. But what if we have (and we do) multiple assessments for a discipline? In other words, if we are assessing natural sciences using multiple measures (a good practice) and even if the proficiencies are the same, say 70% of students met the proficiency for only 3 of the 4 assessments for natural sciences. How do we say, institutionally, whether our students are meeting our university expectations?

Toward that end, we have established the following rubric, which also defines the above and is present on every general education assessment report:

*Table 16. Measure of Achievement for University Outcomes*

**Measure of Achievement for University Outcomes**

The General Education faculty have agreed that achievement is defined as 70% of students assessed will meet the proficiency established by the faculty for the specific course assessment. This establishes an institutional threshold while also allowing for variations in definitions of proficiency as appropriate to the course or subject.

When each course's assessment results are examined and tied to the related competency, we determine a University level of proficiency attainment based on the ***percentage of assessments where proficiency is met for a given competency.*** The following chart illustrates:

| **Evaluation** | **Attainment Expectations *Not Met*** | **Attainment Expectations *Marginally Achieved*** | **Attainment Expectations *Achieved*** | **Attainment Expectations *Exceeded*** |
|---|---|---|---|---|
| Criteria | 0 – 24% of course-level assessments met their mark | 25-49% of course-level assessments met their marks | 50 to 75% of course-level assessments met their marks. | 76 percent or greater course-level assessments met their marks. |

Could we improve upon this methodology? Certainly, there are several ways, and one of the responsibilities of faculty as part of Arts & Sciences, the University Curriculum Committee, instructors, and program coordinators is to work in consultation with the Office of Institutional Effectiveness to strengthen our methods and system for determining achievement. The logical point for review of the assessment results and the system itself is upon completion of the year-end report, in faculty and curriculum meetings throughout the subsequent year to make changes for the following academic year.

## Assessment and Improvement Cycle

The following illustrates the assessment and improvement cycle for general education. Some overlap occurs. This process enables the ongoing assessment, review, and improvement of all aspects of general

education, from relatively modest, or easily implementable changes, such as to textbooks, to larger, more systemic changes such as to course offerings or to the assessment system itself (standards, methods, and so on).

- Year - 1
    - Fall assessment conducted and reported
    - Spring assessment conducted and reported
    - Year-end report compiled, reviewed, and small changes readied for implementation for fall Year - 0
- Year – 0
    - Fall assessment conducted and reported, minor changes from Year - 1 implemented
    - Ongoing discussion and curriculum changes, based on Year – 1 report, submitted, along with proposed changes to the assessment system, if needed.
    - Spring assessment conducted and reported
    - Fall curricular/assessment decisions finalized/approved.
    - Year-end report compiled, reviewed, and small changes readied for implementation for fall Year +1
- Year + 1
    - Fall assessment conducted and reported, minor changes from Year – 0, and major changes implemented from Year – 1 process.
    - Ongoing discussion and curriculum changes, based on Year – 0 report, submitted, along with proposed changes to the assessment system, if needed.
    - Spring assessment conducted and reported
    - Fall curricular/assessment decisions finalized/approved.
    - Year-end report compiled, reviewed, and small changes readied for implementation for fall Year + 2

## Responsibilities & General Education Curriculum Map

As discussed previously, program quality and integrity are responsibilities of all faculty (see p. 27). Faculty teaching general education courses are responsible for maintaining course folders in some form as well as conducting course level assessment in service of the general education program and general education assessment plan.

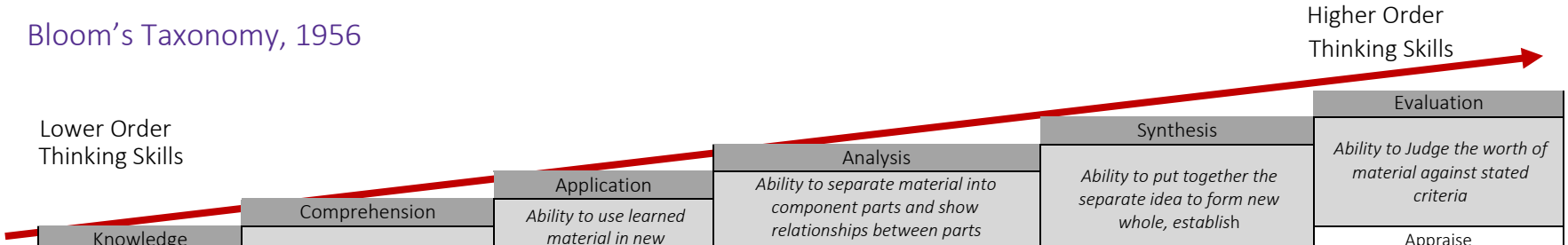
| General Education Curriculum Map<br><br>Course Code and Title | I. Communication Skills | II. Critical Thinking Skills | III. Ways of Knowing in the Humanities | IV. Ways of Knowing—Social and Behavioral Sciences | V. Mathematical Reasoning | VI. Scientific Reasoning | Credit Hours |
|---|---|---|---|---|---|---|---|
| ENC 1101 English Composition (W) | | I | I | | | | 3 |
| ENC 2210 Technical Writing (W) | | R | I | | | | 3 |
| ARH 2000 Art Appreciation (W) | R | | | | | | 3 |
| PHI 2010 Introduction to Philosophy (W) | I | R | | | | | 3 |
| MAC 2311 Analytic Geometry and Calculus 1 | | | | | A | | 4 |
| MAC 2312 Analytic Geometry and Calculus 2 | | | | | A | | 4 |
| MAC 2313 Analytic Geometry and Calculus 3 | | | | | A | | 4 |
| MAD 2104 Discrete Mathematics | | | | | A | | 3 |
| MAP 2302 Differential Equations | | | | | R | | 3 |
| MAS 2105 Linear Algebra | | | | | A | | 3 |
| STA 2023 Statistics 1 | | R | | R | R | | 3 |
| BSC 1010 Biology 1 | | | | | | | 3 |
| BSC 1010L Biology 1 Lab (W) | R | | | | | R | 1 |
| CHM 2045 Chemistry 1 | | | | | | | 3 |
| CHM 2045L Chemistry 1 Lab (W) | | | | | | | 1 |
| PHY 2048 Physics 1 | | R | | | | R | 3 |
| PHY 2048L Physics 1 Lab | R | R | | | | R | 1 |
| PHY 2049 Physics 2 | | R | | | | R | 3 |
| PHY 2049L Physics 2 Lab | R | R | | | | | 1 |
| AMH 2020 American History Since 1877 (W) | R | A | R | A | | | 3 |
| ECO 2013 Principles of Macroeconomics (W) | | A | | A | | | 3 |
| ECO 2023 Principles of Microeconomics (W) | | A | | A | | | 3 |
| PSY 2012 General Psychology (W) | | | | A | | | 3 |

**I** = Introduce concepts or skills
**R** = reinforce concepts or skills
**A** = Evaluation concepts or skills (usually where assessment data/results are taken)
***Note***: although assessment data is usually pulled from courses designated E on the map, assessment could actually occur at any point depending on what trends/results one wanted to study.

*Figure 10. General Education Curriculum Map*

# Appendix B: Cognitive Levels, Terms, and Assessment Tasks—Three Models

## Bloom's Taxonomy, 1956




| Knowledge | Comprehension | Application | Analysis | Synthesis | Evaluation |
|---|---|---|---|---|---|
| *Ability to recall previously learned material* | *Ability to grasp meaning, explain, and restate ideas* | *Ability to use learned material in new situations* | *Ability to separate material into component parts and show relationships between parts* | *Ability to put together the separate idea to form new whole, establish* | *Ability to Judge the worth of material against stated criteria* |
| | Classify | Apply | Analyze | Arrange | Appraise |
| Arrange | Compare | Change | Appraise | Assemble | Argue |
| Define | Convert | Choose | Breakdown | Categorize | Assess |
| Describe | Defend | Complete | Calculate | Collect | Choose |
| Duplicate | Describe | Construct | Categorize | Combine | Compare |
| Identify | Discuss | Demonstrate | Compare | Comply | Conclude |
| Label | Distinguish | Discover | Contrast | Compose | Contrast |
| List | Estimate | Dramatize | Criticize | Construct | Defend |
| Match | Explain | Employ | Debate | Create | Describe |
| Memorize | Express | Illustrate | Diagram | Design | Discriminate |
| Name | Extend | Interpret | Differentiate | Develop | Estimate |
| Order | Generalized | Manipulate | Discriminate | Devise | Evaluate |
| Outline | Give Example(s) | Modify | Distinguish | Explain | Explain |
| Recognize | Identify | Operate | Examine | Formulate | Interpret |
| Relate | Indicate | Practice | Experiment | Generate | Judge |
| Recall | Infer | Predict | Identify | manage | Justify |
| Record | Locate | Prepare | Illustrate | Organize | Measure |
| Repeat | Paraphrase | Produce | Infer | Plan | Predict |
| Reproduce | Predict | Relate | Inspect | Prepare | Rate |
| Select | Recognize | Schedule | Inventory | Rearrange | Revise |
| State | Restate | Show | Model | Reconstruct | Score |
| Tell | Rewrite | Sketch | Outline | Relate | Select |
| Underline | Review | Solve | Point out | Reorganize | Support |
| | Select | Use | Question | Revise | value |
| | Summarize | Write | Relate | Rewrite | |
| | Tell | | Select | Set up | |
| | Translate | | Separate | Summarize | |
| | | | | Synthesize | |
| | | | | Tell | |
| | | | | Write | |

*Figure 11. Bloom's Taxonomy, 1956*

# Anderson and Krathwohl's Taxonomy 2000

Higher Order Thinking Skills

Adapted from: Anderson, L.W., & Krathwohl (Eds.). (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

Lower Order Skills

| Remembering | Understanding | Applying | Analyzing | Evaluating | Creating |
|---|---|---|---|---|---|
| Retrieving, recalling or recognizing knowledge from long-term memory. | *Determining meaning form different types of function be they oral, written or graphic* | *Carrying out or using a procedure through executing or implementing.* | *Breaking material or concept into part, determining how the parts relate to one another or to an overall structure or purpose.* | *Making judgments based on criteria and standards through checking and critiquing* | *Putting the elements together to form a coherent or functional whole* |
| Arrange | Ask | Act | Advertise | Appraise | Adapt |
| Define | Associate | Administer | Analyze | Argue | Anticipate |
| Describe | Cite | Articulate | Appraise | Assess | Arrange |
| Duplicate | Classify | Apply | Breakdown | Choose | Assemble |
| Identify | Compare | Calculate | Calculate | Compare | Categorize |
| Locate | Convert | Chart | Categorize | Conclude | Collaborate |
| Label | Defend | Collect | Classify | Contrast | Collect |
| List | Describe | Compute | Compare | Consider | Combine |
| Match | Discuss | Change | Conclude | Convince | Comply |
| Memorize | Distinguish | Choose | Connect | Critique | Compose |
| Name | Demonstrate | Complete | Contrast | Debate | Construct |
| Order | Discover | Construct | Correlate | Decide | Create |
| Outline | Differentiate | Demonstrate | Criticize | Defend | Design |
| Quote | Estimate | Discover | Debate | Describe | Develop |
| Recognize | Explain | Dramatize | Deduce | Discriminate | Devise |
| Relate | Express | Develop | Devise | Distinguish | Explain |
| Recall | Extend | Establish | Diagram | Editorialize | Express |
| Record | Give Example(s) | Examine | Differentiate | Estimate | Facilitate |
| Repeat | Group | Explain | Discriminate | Evaluate | Formulate |
| Reproduce | Identify | Employ | Distinguish | Explain | Generate |
| Select | Indicate | Illustrate | Dissect | Find errors | Imagine |
| State | Infer | Interpret | Divide | Grade | Infer |
| Tell | Illustrate | Judge | Estimate | Interpret | Intervene |
| Underline | Judge | List | Evaluate | Judge | Justify |
| Visualize | Paraphrase | Manipulate | Examine | Justify | Make |
| | Predict | Modify | Experiment | Measure | Manage |
| | Recognize | Operate | Explain | Order | Negotiate |
| | Restate | Practice | Focus | Persuade | Organize |
| | Rewrite | Predict | Identify | Predict | Originate |
| | Review | Prepare | Illustrate | Rank | Plan |
| | Select | Produce | Infer | Rate | Prepare |
| | Summarize | Relate | Inspect | Recommend | Propose |
| | Show | Record | Inventory | Reframe | Rearrange |
| | Tell | Simulate | Model | Revise | Reconstruct |
| | Translate | Schedule | Order | Score | Relate |
| | Trace | Show | Organize | Select | Reorganize |
| | Transform | Sketch | Outline | Support | Revise |
| | | Solve | Plan | value | Rewrite |
| | | Teach | Point out | Rewrite | Schematize |
| | | Transfer | Prioritize | Set up | Set up |
| | | Utilize | Question | Summarize | Simulate |
| | | Use | Relate | Synthesize | Solve |
| | | Write | Select | Tell | Speculate |
| | | | Separate | Value | Structure |
| | | | Subdivide | Weight | Support |
| | | | Survey | Write | Summarize |
| | | | Test | | Synthesize |
| | | | | | Test |
| | | | | | Tell |
| | | | | | Validate |

*Figure 12. Anderson & Krathwohl's Taxonomy 2000*

## Rogers and Hatfield

Cognitive Levels, Terms and Assessment Task
Gloria Rogers with Susan Hatfield
"Fundamentals of Program Assessment"
ABET, Inc.

| Learning levels | Level Indicators | Assessment Task |
|---|---|---|
| Knowledge | Define<br>Describe<br>Label<br>Recite<br>Select<br>State<br>Write<br>Identify | **Remembering previous learned information:**<br>-Complete multiple choice<br>-Fill in the blank<br>-Provide oral response<br>-Complete true/false<br>-Develop a list<br>-Choose among alternatives (could be a list) |
| Comprehension | Match<br>Paraphrase<br>Restate<br>Illustrate<br>Compare<br>Predict<br>Defend<br>Explain | **Grasping the meaning of Information previously presented:**<br>-Give an analogy<br>-Create an outline<br>-Summarize in own words<br>-Create a concept map<br>-Draw a diagram<br>-Graph the answer<br>-Match term with a definition |
| Application | Apply<br>Change<br>Make<br>Model<br>Show<br>Calculate<br>Examine<br>Solve Use | **Using principle/formula/processes previously learned:**<br>-Compute an answer<br>-Solve a problem similar to previous problems<br>-Solve a problem in a new setting<br>-Create a model<br>-Write an essay that requires the use of the concepts/processes learned<br>-Use theory or principle to explain an event or phenomena |
| Analysis | Analyze<br>Compare/contrast<br>Differentiate<br>Categorize Distinguish<br>Relate | **Breaking down objects or ideas into simpler parts and seeing how the parts relate and are organized:**<br>-Deconstruct a model<br>-Identify differences<br>-Group like items together<br>-Identify what is missing<br>-Identify cause and effect<br>-Perform a SWOT analysis<br>-Discuss an event/ perspective from multiple perspectives<br>-Present the potential impact resulting from a decision or choice |
| Evaluation | Evaluate Select<br>Recommend<br>Rank Critique<br>Judge Assess | **Making judgments based on internal evidence or external criteria:**<br>-Choose best among options and defend your choice<br>-Rank from best to worse using establish criteria<br>-Develop criteria for judgment and apply to a solution<br>-Recommend and defend choice for action<br>-Present the pros and cons of an approach<br>-Determine the degree of success or failure of an action or event |
| Create | Make<br>Generate<br>Build Form<br>Construct<br>Design<br>Fashion<br>Produce | **Making or producing something based on previously learned information and processes:**<br>-Create an end-of program capstone project<br>-Complete a summative class project<br>-Write a summative paper in a course<br>-Write an end-of program thesis<br>-Write an end-of program dissertation<br>-Design an original approach to a situation or problem<br>-Write a short story, poem, play<br>-Use a form of artistic expression to respond to an exigence<br>-Develop a curriculum that integrates multiple disciplines<br>-Conduct independent research |

*Figure 13. Rogers & Hatfield Learning Levels*

# Appendix C: Course Objectives vs. Learning Outcomes (A very short essay).

Previously in this document, I blocked the following text:

Course Objectives vs.
Course Outcomes:

Course objectives are what you plan to put *into a course, e.g. to teach students about….*;
Learning outcomes are what students are supposed be able to do with that material…

Before I explain why this is so, let me get three things out of the way:

1. We haven't always thought of it this way at Poly;
2. Assessment literature differs on this definition of this term; and,
3. Talked about this way means we think of objectives for courses in a fundamentally different way from how we talk about them for administrative units.

Before I explain why I prefer this way, let me illustrate:

- Course Objective: to introduce literary terms, theories, and their application to reading and interpretation.
- Course Learning Outcome: students will be able to apply literary terms correctly and appropriately in analyzing a text.

Course objectives help me know what I'm going to teach; course learning outcomes help me to design the situations in which assessment will take place.

For instance, applying terms differs greatly from identifying them. Thus, the outcome directs me to design an assignment that requires students apply the appropriate terminology to a primary source.

Objectives for a course may include not only what the program (or instructor) intends to put in to it, but also the course's purpose in the program: its relationship to larger pieces of a curriculum. For example, to provide foundational skills in research necessary to further study in the degree. That's very general, but you get the idea.

The point here is that by writing course objectives as inputs, you link each course to the broader coverage of content defined by the discipline; learning outcomes, by contrast, link student acquisition and application of this knowledge from course-level mastery to program-level achievement.

# Appendix D. Course Memo

For courses that are not scheduled to conduct formal assessment of CLOs, or where there is not another administrative or pedagogical reason for CLO assessment, faculty are strongly encouraged to file a Course Memo. The course memo is not a formal assessment of learning outcomes, but a reflection of practice, a holistic assessment of student learning and engagement, and recommendations with respect to a range of matters including content, teaching and delivery methods, role in the curriculum, and so on. There is no specific length to a course memo, but it should be thoughtful and useful for both the instructor and the program faculty.

The course memo should be formatted as follows and may include any of the following sections:

FLORIDA POLYTECHNIC UNIVERSITY

**To:** Department of_____.
**Fr:** Instructor Name
**DT:** 05/04/2018
**RE:** Course Memo: HUM 2022 – Special Topics in the Humanities

---

The following sections may be included in a typical course memo. Other sections/contents as determined by the Instructor may be added as needed. These are suggestions.

**Course Facts**
--Beginning and end enrollment; final grade distribution; and so on. (This should be limited to facts available to the instructor and does not require special data request of the Registrar's office or Institutional Research.
--Discussion of course description/objectives and, to some extent outcomes (though likely less authoritative than if actually assessed), credit hours, and other facts associated with the course that may be worth note to the department's curriculum committee or future instructors.

**Student Learning**
--A discussion of the student's level of preparation for the course; challenges faced; any "leveling" that was needed whether anticipated or not (i.e. efficacy of pre-requisites); student progress throughout the term; final sense of student achievement; specifically speak to whether the students have achieved a level of mastery sufficient to proceed to the next level.

**Teaching Methods**
--A discussion of materials, their value and effectiveness including student use of them. Different methods of delivery, i.e. active learning approaches, technology used, and so on. Should include consideration of both the rationale for these decisions and the perceived or known impact on student learning. Should be an objective, honest assessment of methodology to be of value.

**Equipment/Resources**
--A consideration of equipment or learning resources used or needed. Classroom space/arrangement, or other things that had a material impact on the course in some way.

**Environment & Other Impacts**
--A discussion of the class environment or dynamic and what might have accounted for it. Also, other external factors that may have influenced the delivery and learning experience for students. Examples include scheduling, recent changes to curriculum, relationship to common sections, campus-wide or co-curricular activities that were brought into the course, use of student teaching assistants, and so on.

*Figure 14. Example Course Memo*

# Appendix E. Course Assessment Report Form

*Florida Polytechnic University: Course Assessment Form, ef//a/12017*

| | |
|---|---|
| Course Code and Title: | |
| Academic Term Assessed: | |
| Academic Year: | |
| Date of Report: | |
| Instructor(s): | |
| Applicable Program(s): | |

## Results

| Learning Outcome<br>*list the course le arning out comes below.*<br><br>*One outcome per row* | Assessment Tool/Method<br>*Indicate the student performance (assignment, exam) used to measure the outcome. Explain how student performance is judged; e.g. rubric assessed (and scale); embedded questions; multiple methods, other. In short, how do you distinguish the quality of one performance over another?* | Performance Expectation<br>*What level of attainment on the assessment constitutes proficiency? What #/% of students are expected to achieve proficiency?*<br>*e.g. 75% of students will achieve a 3 or better on rubric indicators)* | Results<br>*Identify whether criterion was Met/Not Met and the numeric results(% and#). E. g. MET--82% (82/100 students) met the proficiency expe ctation.* |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

## Discussion of Findings

| | |
|---|---|
| Analysis and Findings<br>*Provide an analysis and interpretation of the results; answer the question, what did the program learn based on the results of the assessment?* | |
| Action Plan for Improvement<br>*Based on these findings, explain the program's plan for improving achievement of the educational objective* | |

## Evidence Included

Check to verify you have included the following evidence with this form: Copy
of the assessment (exam questions, rubric, or other instrument
Spreadsheet with the raw data reflecting how all students scored on the assessment (this validates your results) Copies
of student arti facts: three for each outcomes: a high, medium, and low score

*Figure 15. Example Course Assessment Report Form*

# Appendix F. Course Evaluation Form

*Florida Polytechnic University: Evaluations of Course Learning Outcomes*
*IE w/ M. Rashid. 10.05.2017*

| Course Evaluation Form | |
|---|---|
| Course Code and Title: | |
| Offering Semester: | |
| Year: | |

Evaluated by _____ Date _____

Evaluated by _____ Date _____

| | |
|---|---|
| 1. Syllabus contains Course Learning Outcomes (four to five) consistent with the course learning outcomes of the ABET syllabus | Yes? |
| Otherwise, comment: | |

| | |
|---|---|
| 2. Learning Outcomes are performance-based and stated using appropriate levels of Bloom's Taxonomy | Yes? |
| Otherwise, comment: | |

| | |
|---|---|
| 3. Assessment Report: The performance expectation is consistent with departmental expectations. | Yes? |
| Otherwise, comment: | |

| |
|---|
| 4. Range of CLO achievement in the course (e.g. CLO 1 85% achieved; CLO 2 30% achieved…):<br>• Lowest: _____ Highest: _____ |
| If more than 15%, comment for justification: |

| | |
|---|---|
| 5. There is an Improvement Plan suggested for upcoming semesters. | Yes? |
| Otherwise, comment: | |

| | |
|---|---|
| 6. There is evidence of the Implementation of improvement plan from previous semesters and its impact. | Yes? |
| Otherwise, comment: | |

| | |
|---|---|
| 7. The course folder contains three samples of all graded student work: above average; average; and below average. | Yes? |
| 8. Are the samples provided sufficient to demonstrate outcome achievement per the following?<br>a. Appropriate number included (low, med, high for each outcome) **Y / N**<br>b. Samples clearly align to the outcome/method for assessment **Y / N** | |
| Otherwise, comment: | |

*Figure 16. Example Course Evaluation Form*

# Appendix G. Program Learning Outcome Evaluation Form

| **Program Learning Outcome** | (c) an ability to design a system, component, or process to meet desired needs | | | | | | |
|---|---|---|---|---|---|---|---|
| **Performance Indicator/ Course Learning outcome** | **Course for Data Collection (cumulative)** | **Assessment Method** | **Semester and year - Data Collected for Evaluation** | **Criterion for Achievement** | **Actual Course Performance (%)** | **Criterion Met Y/N** | **Comments** |
| 1. | | | | | | | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |

**Strengths:**

**Weaknesses:**

**Recommendations:**

**Certifying faculty** (*please sign by typing your name and date*):

**Course Coordinator or first review faculty:** _____ **Date:** _____

**Co-coordinator or second review faculty:** _____ **Date:** _____

*Figure 17. Example PLO Evaluation Form*

# Appendix H. Administrative Unit Assessment Report

## Administrative Unit Assessment Report

**Unit Name: Research Services**

**Academic Year: 2016-2017**
**Date of Report: 5/31/2017**

| Unit Information | |
|---|---|
| **Unit Mission Statement** | The mission of ORS is to provide end-to-end research support services for all faculty, students and staff including funding identification, compliance, and award management and reporting. |
| **Unit Vision Statement** | ORS will assist faculty, staff and students to enrich all types of research and educational experiences and to operate consistently at the highest level of integrity and responsiveness in all areas of sponsored research focusing on each grantee as distinctive and significant to Florida Polytechnic as a whole. |
| **Institutional Mission Reference:** | The primary purpose of ORS is to facilitate an efficient and robust research management hub for the University's mission. |
| **Strategic Goal Alignment:** | Goal 2-applied research. Goal 4-efficient operations |

| | |
|---|---|
| **Performance Goal 1:** | To encourage and assist all faculty and staff in preparing and/or reviewing of proposals to public and private funding sources (Pre-Award & Award tabulation). |
| **Strategic Plan Alignment:** | Goal 1: Deliver core STEM education in fast-growing high technology areas.<br>Objective 1.2: Recruit and retain qualified faculty who are professional practitioners and scholars in their respective fields. 1.2.5. Identify and grow at least three faculty development efforts that help faculty become more successful both inside and outside of Florida Poly. |
| **Budget Allocation:** | .50 FTE |

| Objective | Assessment Method | Performance Expectation | Results | Analysis and Action Plan for Improvement |
|---|---|---|---|---|
| Increase the number of external proposals submitted by 30% | Tabulation of data: Internal report the number of proposals prepared and submitted | 30% increase over previous year. (14 proposals to 18 new proposals) | Met— As of 5/31, 23 proposals have been submitted for 4.31M in requests. | Goal met. Continue reaching out to faculty to assist with funding identification and proposal development. |
| Increase the number of external awards to the University by 20% | Tabulation of data: Internal report the number of awards (funded proposals) | 20% increase over previous year (5 awards to 6 new awards) | Not Met— As of 5/31, there are 4 new awards, totaling over 1.56M. | Performance goal at 67% met. Continue working with faculty and staff to ensure timely and accurate establishment of awards. |

*Figure 18. Admin Unit Assessment Report*

# Appendix I. Administrative Unit Assessment Plan

FLORIDAPOLY

Administrative Unit Assessment Plan

Unit Name: **Research Services**

**Academic Year: 2017-2018**
**Date of Report: 7/1/2017**

| Unit Information | |
|---|---|
| **Unit Mission Statement:** | The mission of ORS is to provide end-to-end research support services for all faculty, students and staff including funding identification, compliance, and award management and reporting. |
| **Unit Vision Statement:** | ORS will assist faculty, staff and students to enrich all types of research and educational experiences and to operate consistently at the highest level of integrity and responsiveness in all areas of sponsored research focusing on each grantee as distinctive and significant to Florida Polytechnic as a whole. |
| **Institutional Mission Reference:** | The primary purpose of ORS is to facilitate an efficient and robust research management hub for the University's mission. |
| **Strategic Plan Alignment:** | |

**Executive Summary**

*In the spaces below, identify planned changes based on the results reported in the most recent Assessment Report. Identify the goal or objective in this Plan related to the change(s). If you've dropped a goal/objective from the previous report, put that information in line one and leave the left column blank.*

| **Goal/Objective #** *(Identify related goal/ objective in this plan)* | **Planned Changes based on Results from Most Recent Assessment Report** *(May be copied from Column 4 of most recent Assessment Report)* |
|---|---|
| Goal 1 Objective 1 | Goal met. Continue reaching out to faculty to assist with funding identification and proposal development. |
| Goal 1 Objective 2 | As of 5/31, there were 4 new awards. Performance goal at 67% (to go from 5 awards in 2016 to 6 awards in 2017). Continue working with faculty and staff to ensure timely and accurate establishment of awards. |

| | |
|---|---|
| **Performance Goal 1:** | To encourage and assist all faculty and staff in preparing and/or reviewing of proposals to public and private funding sources (Pre-Award & Award tabulation). |
| **Strategic Plan Alignment:** | Goal 1: Deliver core STEM education in fast-growing high technology areas.<br>Objective 1.2: Recruit and retain qualified faculty who are professional practitioners and scholars in their respective fields.<br>1.2.5. Identify and grow at least three faculty development efforts that help faculty become more successful both inside and outside of Florida Poly. |
| **Approx. Budget Impact:** | 1.0 FTE |

| Objective | Assessment Method | Performance Expectation | Assessment Period |
|---|---|---|---|
| Increase the number of external proposals submitted by 15% | Tabulation of data: Internal report the number of proposals prepared and submitted | 15% increase over previous year. (18 new proposals to 21 new proposals) | Tracked Monthly; reported at mid-year and year-end. |
| Increase the number of external awards to the University by 100% | Tabulation of data: Internal report the number of awards (funded proposals) | 100% increase over previous year (2 awards to 4 new awards) | Tracked Monthly; reported at mid-year and year-end. |

*Figure 19. Admin Unit Assessment Plan*

# Glossary

**Assessment**: a systematic process of gathering and interpreting information relevant to your objective and operations in order to evaluate performance and make improvements.

**Continuous improvement**: ongoing planning, evaluation, and change with the intent to improve upon the effectiveness of meeting a unit or program's mission, achieving or reaching the University's vision, and thereby delivering a higher quality experience for all institutional stakeholders.

**Course Learning Outcome (CLO)**: the desired skill, knowledge, or ability resulting from a course's content and instruction.

**Course Objective**: the specific content or skills the course is designed to transmit; the course's function in the program curriculum.

**Formative assessment**: assessment conducted at the beginning or middle of the course or program.

**Institutional Effectiveness (IE)**: the systematic, explicit, and documented process of measuring institutional performance against mission in all aspects of an institution (*Resource Manual*, 2nd ed, rev. 2012)

**Mission Statement**: a description of what the institution or unit does and for whom.

**Operational Plan**: A plan that breaks down the broader priorities as outlined in a strategic plan into annual goals, objectives, and tasks to be attained within a shorter period of time, e.g. 1-year. The operational plan helps to inform budget planning.

**Outcomes**: the consequence of the learning in a course or program. E.g. as a result of the course content, students will be able to do x.

**Outcome-based objective**: measure the result of some activity: we do X and Y occurs. The measurement is not based on the action taken but on the intended affect relative to a baseline or benchmark likely to result from the action.

**Outputs**: how much/how many produced from work-related processes.

**Process objectives**: quality of the service or function performed. Rather than the intended effect, they measure improvement in processes such as reduced cost, greater accuracy, efficiency, or other desirable outcome.

**Program Educational Objective (PEO)**: statement with respect to what graduates of the program are expected to achieve within a few years of graduation.

**Program Learning Outcome (PLO)**: the desired skill, knowledge, or ability resulting from a program's content and instruction.

**SACSCOC**: the Southern Association of Colleges and Schools Commission on Colleges; the regional accrediting body that accredits Florida Poly.

**Satisfaction objective**: an objective centered on the satisfaction of clients and stakeholders.

**Strategic Plan**: A plan that articulates a desired level of performance or attainment for an institution within a defined period of time, typically 5-years. A plan focuses on critical aspects of an institution that best help it to deliver its mission and achieve its vision.

**Strategic Planning**: A systematic process of gathering data and stakeholder input to articulate or reaffirm an institution's mission and vision and articulate a plan for the organization's future.

**Summative assessment**: conducted as an overall evaluation of programs and services for the purposes of accountability, decision-making, resource allocation and meeting regulatory compliance.

**Vision Statement:** a statement that expresses what a unit, program, or institution hopes to be at some point in the future.