



Reaffirmation of Accreditation

Quality Enhancement Plan

January 5, 2022
Reaffirmation Class of 2022

Executive Summary

Florida Poly's Engaged Education PProject (FL Peer) is a multifaceted enhancement plan that draws on student currency using peer learners, focused learning support methodology, and intentional, integrated support connections from faculty to peer leader to student learner with the objective of improving student achievement as measured by Academic Progress Rate and Graduation Rate.

Through the University's comprehensive planning and evaluation processes, strategic objectives, and mission within the State University System of Florida, the University determined that first-to-second year retention among FTICs at a 2.0 GPA or better (defined as Academic Progress Rate) stood as the critical metric to improve and the gateway to all other measures of student achievement and success.

The University's broad-based effort started with a committee representative of institutional stakeholders in learning, learning support, and instructional support, then broadened to include all University stakeholders. Through this process, the University determined that the critical piece it needs to develop is peer-led instructional support. Further research led us to metacognitive learning strategies that could be introduced in first-year courses by faculty, reinforced through guided practice by Peer Learning Strategists (PLSs), and result in students who engaged more deeply with course material and achieved greater learning acquisition in the first-year and beyond.

The focus on students supporting students via faculty directed learning strategies comes at the realization that students already turn to each other to learn how to "get through a course." By training successful students in these strategies, the peer leaders could help students recognize and overcome the gap between high school and collegiate expectations for learning, required study time and effort, and the necessity and skills to begin learning independently.

The University committed substantial time and budget to ensuring a full-scale pilot program would launch in fall 2021 and has committed greater budget and effort to improve on the pilot for spring 2022, with the hope that the fall 2022 cohort will enter the University with a fully-developed FL Peer program that will launch them successfully through their second year, graduation, and beyond.

Florida Poly will assess the plan via institutional metrics for course DFW rates, academic progress rate, and four-year graduation rate. These results will be disaggregated by Pell recipients to ensure that the University is advancing its mission and role in the State University System to transform Florida's economy to a high-tech, high-wage environment.

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Introduction

This report demonstrates the University’s efforts to develop a Quality Enhancement Plan. The document takes the reader through the lengthy, initial planning and development stage where institutional data is reviewed as part of the University’s ongoing comprehensive planning and evaluation process, the formation of a process for identifying a topic, the execution of that process, and the first phase of piloting the chosen program. To aid the reader, we have included a table showing specific places in the report where compliance with the standard is addressed, directly or indirectly, and a timeline for the University’s efforts at identifying, piloting, and implementing its QEP.

The document is organized in three major sections: planning, the plan, and institutional commitment. Broadly, sections a) and b) of 7.2 are addressed in part 1; while sections c) and e) are included in part 2; section d) is provided as part 3 of the document followed by appendices.

Compliance with Standard 7.2

Chart showing where in the document can be found compliance to these parts of the standard—

7.2 QEP	Chapter	Section	Pages
a) has a topic identified through its ongoing, comprehensive planning and evaluation processes	Part I – QEP Development	QEP Development Team	pp. 6-15
b) has broad-based support of institutional constituencies	Part I – QEP Development	QEP Steering Committee	pp. 15 - 26
c) focuses on improving specific student learning outcomes and/or student success	II. Florida Poly Engaged Education Project – the Plan	Peer-Led Learning	pp. 27-42
d) commits resources to initiate, implement, and complete the QEP	III. Institutional Commitment	Initiation and Implementation	pp. 43-44
e) includes a plan to assess achievement	II. Florida Poly Engaged Education Project – the Plan	FL Peer Assessment Plan	pp. 32-36

QEP Planning - Timeline of Events

In the fall of 2018, the University was dedicated to the ABET review process for four of its degree programs. Two site visits took place in October 2018. Upon conclusion of that portion of the process, the University began looking toward SACSCOC Reaffirmation.

- Spring 2019 – Fall 2019
 - Units under the Vice Provost of Academic Affairs, the Office of Institutional Research and Effectiveness and the Department of Teaching and Learning, begin discussing potential QEP topics and examining evidence related to student learning and achievement
- December 2019
 - SACSCOC Annual Meeting. Several Florida Poly representatives in attendance to learn about QEP and Compliance Certification/Reaffirmation
- January 2020

- First meeting of Institutional Effectiveness Committee (IEC) to discuss QEP process and topics
- March 2020
 - Covid-19, all instruction moves remote
- Spring - Summer 2020
 - Rapid development and deployment of services to support faculty and students for remote delivery;
 - Preparations for fall Covid-19 semester, faculty development;
 - QEP Development Team continues to review data and discuss focus of plan and planning process.
- Fall 2020
 - Remote-instruction semester with no in-person attendance requirement for students;
 - Completely remote after Thanksgiving break;
 - Development Team and IEC become QEP Steering Committee to explore the data examined and facilitate the institution's topic selection.
- Spring 2021
 - Limited attendance requirement for all classes, hybrid delivery.
 - QEP Steering Committee completes its review of data, discussions, stakeholder meetings, and analysis and recommends topic to Reaffirmation Committee (President's Cabinet).
- Spring 2021 – Summer 2021
 - Plans shift to implementation focus.
 - Heavy faculty hiring season including new department chairs in Applied Mathematics, Electrical and Computer Engineering, and Engineering Physics.
 - SACSCOC Summer Institute, Dr. Mary Vollaro, Chair of Mechanical Engineering attends Mr. Leonard Geddes' talk and finds connection with the QEP topic and the purpose in our Foundations Sequence, especially IDS 1380 – Introduction to STEM.
 - Provost, Dr. Vollaro, and others meet with Mr. Geddes and contract with LearnWell Initiatives to implement the metacognitive framework of learning strategies and Peer Learning Strategists for Fall 2021 pilot.
- Fall 2021
 - The University implements Peer Learning Strategists (PLS) assigned to four courses commonly taken in the first year: MAC 1147 – Precalculus; MAC 2311 – Analytic Geometry and Calculus 1; MAC 2312 – Analytic Geometry and Calculus 2; IDS 1380 – Intro to STEM.
 - These courses account for the entire first-year population.
 - Approximately 30 PLSs are hired to be trained by Mr. Geddes and work with the students and course faculty.
 - PLSs are used for other courses in the first year as well, but predominately associated with the above four.
- Spring 2022
 - Phase 2 of the QEP Pilot, specifically around PLS training and creating a sustainable program;
 - SACSCOC Onsite visit in February

I. QEP Development Process

In April 2012, the Florida State Legislature passed a bill making Florida Polytechnic University the 12th state University in the Florida State System and the only one dedicated wholly to STEM programs. The University, which had been excised from another state University's branch campus, was given new land, new funds, a few legacy resources including a state research institute, and a half-dozen highly demanding legislative directives to accomplish within a short time-period, including a specific headcount and regional accreditation by 2016.

In August 2014, Florida Poly opened its doors to its inaugural class, offering six undergraduate degree programs, two graduate degrees, and a range of concentrations to provide variety of disciplinary and interdisciplinary flavor to a small menu of offerings. The University also had to appeal to the legislature to adjust their original mandate and, with some help from SACSCOC President, Dr. Belle Wheelan, convince the Florida State legislature, that a two-year path to full accreditation was not possible, so the State of Florida extended our timescale to December of 2017 to achieve initial accreditation.

Going from an empty field to an accredited University in three years means that you have to move fast, be inventive, recognize the provisional nature of nearly every decision, learn to live with "good enough for now" and continue to redo a lot of things that you would have liked to have done better. By the time your reaffirmation comes around, five years after your initial accreditation, you feel as though you have been pumping out "quality enhancement plans" at the rate of every six weeks or so. Add in a global pandemic with its ongoing, slow-motion crisis management and the accompanying operational mayhem that has students, faculty, staff, and again those legislators and their budget pens going (often at cross-purposes), and you find you focus on the critical outcomes that drive your core business and that have been hectoring you since the beginning.

The purpose of this section is to provide background on the process, institutional environment, and data that led the QEP Steering Committee to develop and shop to campus stakeholders relevant topics for input. From that input, the Steering Committee developed an analysis and recommendation to the Reaffirmation Leadership Team so that it might select the University's QEP Topic and identify the core group of faculty and staff who would further shape the proposal and lead the implementation and ongoing study for the next five years.

QEP Development Team

Units that serve under the Vice Provost of Academic Affairs include the following:

- Institutional Research and Effectiveness – responsible for state and federal reporting, internal decision-support, coordinating and supporting academic and administrative assessment, national and internal surveys, curriculum coordination.
- Teaching and Learning – includes faculty instructional development, educational outreach, entrepreneurship, and the Simulation, Instruction, and Media (SIM) Lab. These units regularly engage with students and faculty on learning and instructional support services and were instrumental in providing service to faculty and students during Covid-19's remote instruction phases.

The Vice Provost tasked these units to serve as the Development Team responsible for pulling together institutional data garnered from existing assessment processes, performing unique studies where

required, and relying on the expertise of those on staff to put forward direction for the data-informed process that would support the eventual Steering Committee.

Institutional Research, Planning, and Evaluation at Florida Poly

Florida Poly has a strong institutional effectiveness process, guided by the University’s strategic plan, the President’s annual operational plan, the University’s Accountability Plan for the Board of Governors (led by the Provost) and the administrative, academic, and student and academic support units that carry out these strategies and operations.

The University identifies expected outcomes, assesses the extent to which those outcomes are achieved, evaluates that achievement, and makes improvement plans based on results and other available data in the areas of administration; educational degree programs; general education; and in academic and student support service areas.

The University’s integrated, comprehensive process ensures continuous assessment, evaluation, and change for improvement are critical to the University demonstrating the delivery of its mission to "serve students and industry through excellence in education, discovery, and application of engineering and applied sciences."

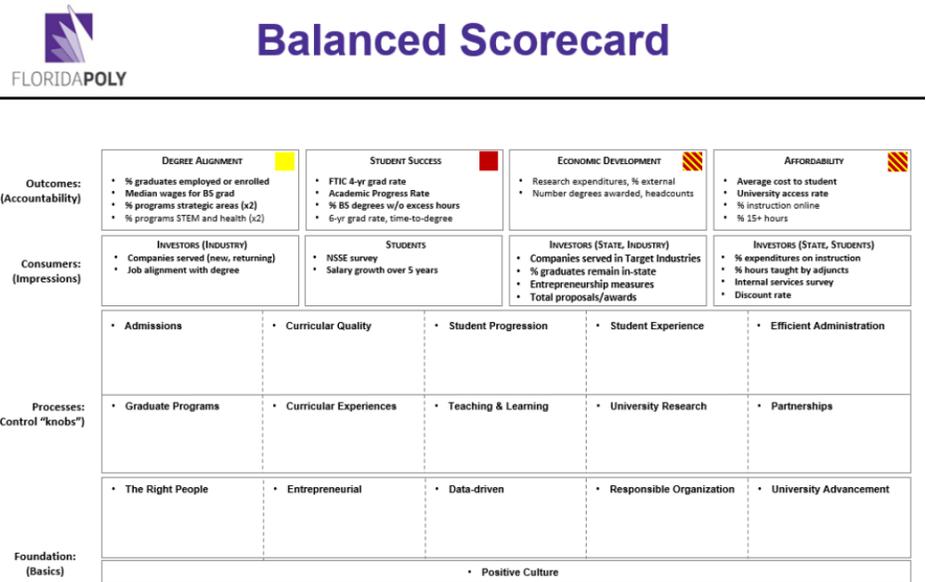
Florida Poly’s Institutional Effectiveness Manual provides a foundation for conducting all university assessment, whether at the Presidential-level, degree programs, or administrative, academic, and student services units. Each of these broad three areas: Institutional (President); Degree Programs; and Administrative Units conduct their assessments in different ways as befitting their roles and own missions within the institution, but all conform to a consistent pattern and cycle of assessment and improvement.

Strategic & Operational Planning

The University operates with five-year strategic plan cycles, currently in the second plan (2018-2023).

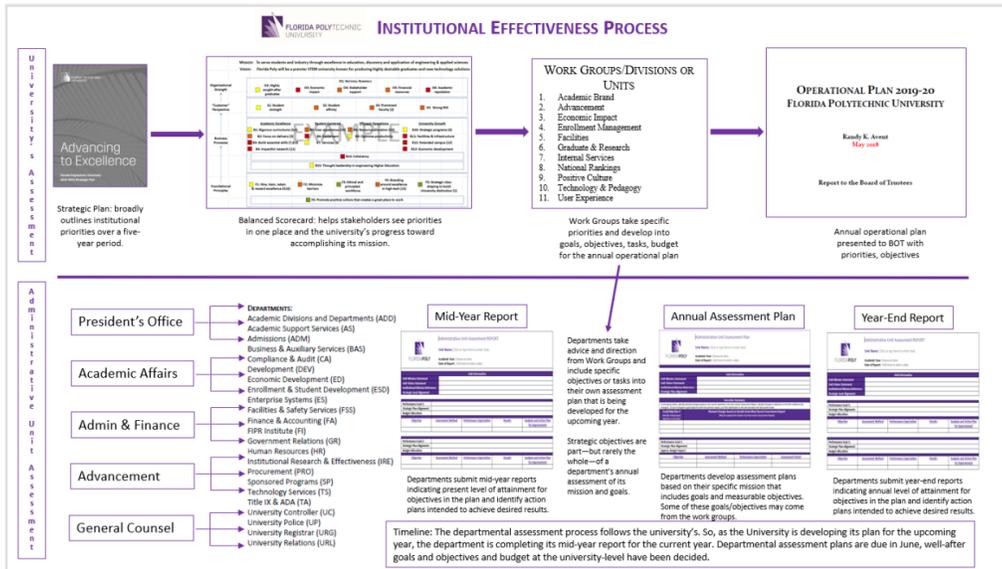
Each year, the President develops operational priorities that are framed out using a “balanced scorecard” approach with strategic priorities at the top, followed by stakeholders and supporting objectives then more focused or “process” objectives on each tier down.

This enables the University and its Board to look at overall institutional progress, identify areas of concern and focus, and work to improve those in annual



operational plans. These operational plans set the priorities for University administrative, academic, and student support units and from which they define their performance objectives.

The following visual representation of the IE process shows the strategic plan as the point of origin, followed by the balanced scorecard and the remainder of the process. The University’s Accountability Plan serves in a parallel, overlapping way with the strategic plan and both drive many of academic priorities for the University.



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 regulations on assessment and program review and to our own University policy. 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

These are more specifically addressed in program outcomes, which are aligned with professional accreditation learning outcomes or closely modeled to support the University’s mission in STEM application and industry value. 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.

Four Florida Poly bachelor's degrees have been accredited by ABET, the global accreditor of college and university programs in applied and natural science, computing, engineering, and engineering technology officially on August 28, 2019. The University values its ABET accreditation to the extent that University program curricular structure and academic assessment program are modeled largely on ABET criteria. This facilitates common institutional language and expectations for course and program assessment and evaluation and is particularly useful for Florida Poly curricula, which are highly cross-disciplinary.

General Education Program Assessment and Improvement

Similarly, the University's general education program assessment process does not differ in any substantial way from that for Academic degree programs in that course-level outcomes are aligned with program-level competencies to determine achievement. The learning outcomes, however, are just one component of our general education assessment, which looks at student achievement in coursework as a whole by examining DFW rates and student perception of learning. These mixed methods serve to evaluate the program as more than just a series of courses but as an educational and campus experience that drives student engagement and future success in their chosen major and beyond. Program improvements are regularly conducted at the course-level by faculty and the departments primarily responsible for the curriculum.

Administrative Assessment

Administrative, and Academic and Student Services assessment encompasses all the non-faculty units on campus. Each "unit-assessment" requires that the unit leader consult with supervisors and staff to develop goals and objectives in line with the President's annual operational plan and work with the Office of Institutional Research and Effectiveness to ensure quality measurable objectives that align and include appropriate assessments.

The Provost drives the University's Accountability Plan required annually by the Florida Board of Governors. Initiative and metrics in this plan align with the University's Strategic Plan and the President's annual operational objectives. Most of the units in academic (staff) and student services areas include objectives that align with the accountability and operational plans.

Research within the University's Comprehensive Process

Within this broad, institutional effectiveness framework, the QEP Development Team looked at areas of vulnerability within the institution to identify gaps between our expectations and student achievement or, put another way, what "problem" we were trying to solve.

The QEP Development Team and the QEP Steering Committee informally and formally reviewed data from a range of sources aligned with our assessment processes including but not limited to the following:

- Course progress rates (DFW) in key first-year and second-year courses
- National Survey Results such as Noel Levitz' Student Satisfaction Inventory
- University Accountability Plan metrics, especially related to performance-based funding
- Academic and Unit Assessments

The priority of the Development Team was, as stated, to identify these gaps and define the most pressing problem.

Preliminary Analysis

Units under the VPAA explored the assessment results coming out of the institution, specifically:

- Academic Degree Program Assessment and General Education
- Administrative Units
- Academic and Student Support Service Units

Administrative Units were briefly reviewed but dismissed because they have no direct impact on student learning or achievement. The focus turned to academic program assessment and academic and student services.

Investigation at the degree program level found that by the time summative assessment is taken, there are few obvious gaps in expectations; however, among the metrics tracked for general education is DFW rates in first-year and gateway courses. These rates stood out as the biggest variance between expectation and performance.

Data reviewed and later shared with the IE Committee (or QEP Steering Committee) included rates related to the Foundations Sequence courses, other common first-year courses, and a handful of sophomore gateway courses in the majors as a control or additional reference point.

Foundations Sequence Courses (this is 8-credits in the first-year where the curriculum and delivery is shared among programs and focuses on core skills and aptitudes necessary for success in Florida Poly programs. These courses are the first four in the table below, specifically: Academic and Professional Skills (APS); Introduction to STEM (STEM); Introduction to Computation and Programming (Programming), and Concepts and Methods for Engineering and Computer Science (C&M).

APS is an academic skills course, whereas Programming is exactly that—a programming course required of all students. Intro to STEM and C&M are skills-based courses taught across multiple departments with a coordinated course delivery model to ensure consistency across sections. We have been tweaking and adjusting the content of all of these courses since each of them was created and added to the curriculum. We have made significant changes to this sequence effective with fall 2021 (more on this later).

The second and third sets of courses are core mathematics and natural science courses taken in the first year (depending on transfer credit). These courses, particularly Calculus 1, are critical to progression in our degree programs. All programs require Calc 1 and all but one require calculus beyond that level. Note that rates for spring 2020, fall 2020, and spring 2021 reflect in some cases institutional policy changes to be forgiving of students experiencing hardship due to Covid-19.

The final set of courses is a selection of courses from across different majors. (Gaps indicate terms in which the course was not taught.) The variances here were determined to be best managed within the assessment processes that are already part of each degree program, and so the obvious focus became the first year.

The question was what factors were influencing these undesirable rates. Possible factors include:

- Student preparedness
- Faculty instructional variances and approaches
- Support services (academic, academic coaching)
- Campus engagement (motivators to get out of the residence hall and into the classroom and campus life)

Course	TERM	DFW %	DFW %	TERM
SLS 1106 - APS	Fall 2017	11%		SP 2017
	Fall 2018	20%	21%	SP 2018
	Fall 2019	11%	36%	SP 2019
	Fall 2020	20%	50%	SP 2020
IDS 1380 - STEM	Fall 2017	12%		SP 2017
	Fall 2018	14%	25%	SP 2018
	Fall 2019	14%	34%	SP 2019
	Fall 2020	47%	35%	SP 2020
COP 2271C - Comp-Prgm	Fall 2017	21%	20%	SP 2017
	Fall 2018	5%	29%	SP 2018
	Fall 2019	48%	23%	SP 2019
	Fall 2020	32%	16%	SP 2020
EGN 1007C - C&M	Fall 2017			SP 2017
	Fall 2018	0%	10%	SP 2018
	Fall 2019	9%	13%	SP 2019
	Fall 2020	22%	10%	SP 2020
MAC 1147 - Pre-Calc	Fall 2017	36%		SP 2017
	Fall 2018	47%	36%	SP 2018
	Fall 2019	32%	66%	SP 2019
	Fall 2020	47%	29%	SP 2020
MAC 2311 - Calc 1	Fall 2017	30%	52%	SP 2017
	Fall 2018	35%	53%	SP 2018
	Fall 2019	42%	55%	SP 2019
	Fall 2020	31%	18%	SP 2020
MAC 2312 - Calc 2	Fall 2017	64%	43%	SP 2017
	Fall 2018	55%	46%	SP 2018
	Fall 2019	43%	42%	SP 2019
	Fall 2020	55%	16%	SP 2020
MAC 2313 - Calc 3	Fall 2017	23%	54%	SP 2017
	Fall 2018	46%	26%	SP 2018
	Fall 2019	14%	26%	SP 2019

Course	TERM	DFW %	DFW %	TERM
	Fall 2020	27%	21%	SP 2020
STA 2023 - Statistics 1	Fall 2017	28%	19%	SP 2017
	Fall 2018	24%	30%	SP 2018
	Fall 2019	24%	21%	SP 2019
	Fall 2020	18%	17%	SP 2020
STA 3032 - Prob & Stats	Fall 2017			SP 2017
	Fall 2018	14%	21%	SP 2018
	Fall 2019	30%	46%	SP 2019
	Fall 2020	19%	17%	SP 2020
CHM 2045 - Chem 1	Fall 2017	23%	38%	SP 2017
	Fall 2018	25%	42%	SP 2018
	Fall 2019	60%	41%	SP 2019
	Fall 2020	33%	14%	SP 2020
PHY 2048 - PHY 1	Fall 2017	10%	19%	SP 2017
	Fall 2018	27%	21%	SP 2018
	Fall 2019	48%	32%	SP 2019
	Fall 2020	44%	31%	SP 2020
PHY 2049 - PHY 2	Fall 2017	10%	15%	SP 2017
	Fall 2018	24%	25%	SP 2018
	Fall 2019	36%	32%	SP 2019
	Fall 2020	50%	34%	SP 2020
EGN 2001C - Skills & Design 1 (Mech Engr.)	Fall 2017	10%		SP 2017
	Fall 2018	8%		SP 2018
	Fall 2019	8%		SP 2019
	Fall 2020	38%		SP 2020
EGN 3311 - Statics (Mech. Engr)	Fall 2017	19%	31%	SP 2017
	Fall 2018	42%	39%	SP 2018
	Fall 2019	4%	29%	SP 2019
	Fall 2020	23%	18%	SP 2020
	Fall 2017	33%	36%	SP 2017

Course	TERM	DFW %	DFW %	TERM
EEL 3111C - Circuits 1 (EE, CE, ME)	Fall 2018	23%	22%	SP 2018
	Fall 2019	10%	24%	SP 2019
	Fall 2020	22%	12%	SP 2020
COP 3337C - Obj Or Prog (CS)	Fall 2017	28%	33%	SP 2017
	Fall 2018	25%	31%	SP 2018
	Fall 2019	24%	22%	SP 2019
	Fall 2020	37%	5%	SP 2020
COP 3530 - Data Structures & Algorithms (CE)	Fall 2017	27%	29%	SP 2017
	Fall 2018	4%	39%	SP 2018
	Fall 2019	24%	19%	SP 2019
	Fall 2020	33%	13%	SP 2020
COP 3710 Database 1 (CS,DSBA)	Fall 2017	24%	23%	SP 2017
	Fall 2018	13%	4%	SP 2018
	Fall 2019	9%	5%	SP 2019
	Fall 2020	11%	7%	SP 2020
COP 4415 - Data Structures (CS)	Fall 2017	13%		SP 2017
	Fall 2018	11%	23%	SP 2018
	Fall 2019	10%	15%	SP 2019
	Fall 2020	14%	13%	SP 2020
COP 4531 - Algorithm Design & Analysis (CS)	Fall 2017	42%		SP 2017
	Fall 2018	26%	54%	SP 2018
	Fall 2019	20%	18%	SP 2019
	Fall 2020	5%	20%	SP 2020
COP 2034 - Python (DSBA)	Fall 2017			SP 2017
	Fall 2018			SP 2018
	Fall 2019	0%		SP 2019
	Fall 2020	5%		SP 2020
BUL 2241 - LawPolicyNeg (BA)	Fall 2017	6%		SP 2017
	Fall 2018		10%	SP 2018
	Fall 2019		7%	SP 2019
	Fall 2020		3%	SP 2020
EGS - 3625 Proj Mgmt (DSBA)	Fall 2017	7%	7%	SP 2017
	Fall 2018	0%	7%	SP 2018
	Fall 2019	3%	0%	SP 2019

Course	TERM	DFW %	DFW %	TERM
	Fall 2020	13%		SP 2020

With these potential factors in mind, the QEP Development Team prepared a summary view of student responses to the Noel-Levitz Student Satisfaction Inventory to identify potential areas of weakness. For the last several years, the University has administered the Ruffalo Noel Levitz Student Satisfaction Inventory (SSI) to all active students. The SSI captures how students feel at the institution, both inside and outside the classroom and compares results with national peers. It asks students to identify levels of importance and satisfaction with a variety of items including instruction, advising, registration, financial aid, residence life, campus climate, and others. The latest survey was in the spring of 2020 with a response rate of 31%. (We administered the National Survey of Student Engagement NSSSE, in spring 2021, details in appendix.)

Although student perceptions are an indirect measure, the responses are important to gain a sense of areas of strength and opportunities for improvement. The SSI has shown to have a link between student satisfaction and retention as well as graduation rate. This is particularly true where students have a sense of the importance they place on an item (question) and their level of satisfaction that the institution is meeting this expectation. The difference between the two is referred to as a performance gap. Students respond to each item (importance and satisfaction) on a 1 to 7 Likert scale, with 7 being high. Averages for importance are typically in the range of 5 to 6 and average satisfaction scores are typically in a range of 4 and 5.

The table below attempts to associate relevant questions within the SSI to one or more of the four topics. In addition, the perception of the level of importance, the level of satisfaction and the performance gap are listed based on the spring 2020 SSI.

SSI Question	Importance to the Students	Satisfaction Score	Performance Gap
Students are made to feel welcome here.	6.15	5.56	0.59
The quality of instruction I receive in most of my classis is excellent.	6.57	4.91	1.66
The content of the courses within my major is valuable.	6.65	5.14	1.51
There are sufficient courses within my program of study available each term.	6.42	4.75	1.67
My academic advisor is knowledgeable about requirements in my major.	6.31	5.54	0.77
I have been able to connect academic learning with real world experiences.	6.26	5.09	1.17
I am able to register for classes I need with few conflicts.	6.45	4.82	1.63
Career Development provides resources to support internships and job searches.	6.23	5.40	0.83
I receive the help I need to apply my academic major to my career goals.	6.21	5.08	1.13
Faculty are usually available for students outside of class.	6.20	5.93	0.27
Students are free to express their ideas on this campus.	6.18	5.71	0.47
Academic Success Coaches provide information and support that I need.	6.16	5.44	0.72
Students are made to feel welcome here.	6.15	5.56	0.59
I seldom get the "run-around" when seeking information on this campus.	6.12	4.61	1.51
Counseling services are available if I need them.	6.07	5.12	0.95
There are adequate services to help me decide upon a career.	6.10	4.96	1.14
My academic advisor is available when I need help.	6.09	5.47	0.62
Tutoring services are readily available.	6.02	5.40	0.62
Student activity fees are put to good use.	5.98	4.72	1.26
I have gained essential soft skills while at FL Poly.	5.96	5.18	0.78
Mentors are available to guide my life and career goals.	5.90	4.96	0.94
My academic advisor helps me set goals to work toward.	5.71	4.98	0.73
I receive ongoing feedback about progress toward my academic goals.	5.69	4.54	1.15
Student Clubs and organizations represent the student body.	5.66	5.32	0.34
Resident hall staff are concerned about me as an individual.	5.51	5.16	0.35
Faculty use a variety of technology and media in the classroom.	5.41	5.38	0.03
Use of the Student Development Center is a part of my regular routine.	5.12	5.00	0.12
Faculty provide timely feedback about my academic progress.	6.24	4.91	1.33
Registration processes and procedures are convenient.	6.23	4.91	1.33
Financial aid counseling is available when I need it.	6.07	5.71	0.36
This institution helps me identify resources to finance my education.	5.98	4.89	1.09

Gaps of more than 1.0 points were highlighted for synthesis and review. Main topics of concern noted include instruction in terms of course content, application to real-world, timely feedback, academic/career goals; advising and registration, which we group together as interconnected components in student flow and experience (noting that "course availability" is a departmental offerings management problem and also something the University has been working to improve and make clear). Finally, career-related support was noted as showing a gap. Given our academic organization, career, while distinct, has an advising and faculty overlap that we felt important to consider.

Notably, academic support (tutoring services) was not identified as a gap; however, institutionally, we note several problems with tutoring services, namely a weak linkage between what the faculty teach in the course and the content and methods tutors deliver. Even so, we know that "tutoring" in some form is an expectation of students and their families and that it requires a proactive stance on the part of the University to show how it meets those expectations. Added to this, the University has to have confidence that its academic support efforts are the right ones for the curricula, the student population, and the learning goals of the institution and its programs.

The bottom line is that from this data, one can glean a connection between DFW performance and instructional satisfaction. Whether this is causal is an entirely different matter and still does not resolve the issue of what expectations on the part of students are not being managed in an appropriate way so

that they can succeed, and what assumptions might faculty be making that is inhibiting their ability to connect?

These rates are early indicators of student achievement, and the Noel-Levitz data provides some degree of insight into the reasons for these figures. Outcomes assessment on these courses has largely reinforced the gap seen at the holistic grade (DFW rate) level and provides some degree of instructional insight into particular problems but hasn't yet got at the core issue of why the rates are so high.

The larger question, too, is why do these rates matter? What is the importance to the University and to students that these rates be lowered in a way that does not compromise course quality? Put another way, wouldn't weeding them out constitute a better approach?

The answer to this question lies squarely in the role, purpose, and mission of the University. Florida Poly, while selective from an admissions standpoint, was designed to contribute meaningfully to the Florida economy through graduating students with high-tech degrees and industry partnerships that enhance the value and profitability of these companies resulting in a growing high-tech economy for central and all of Florida. Simply weeding them out is not an option, nor is it consistent with the Florida Board of Governors performance-based funding model that uses key student achievement metrics to measure institutional quality and guide state investments in education.

Two metrics on the annual accountability plan summarize the consequence of these high DFW rates. One is the Academic Progress Rate (1st-2nd year retention at a 2.0 or better; hereafter used interchangeably at retention rate or APR), and the four-year graduation rate. Noting that both of these rates are challenging for engineering institutions and comparable data on rates from engineering and computer science programs to the extent it can be gleaned from sister institutions in the SUS, is difficult to obtain for comparison. Moreover, it does not matter in the eyes of the Board of Governors because they are comparing institutional outcomes, regardless of mission. Thus, both metrics point to obvious areas of concern for the University and DFW rates shine as early indicators that we may have difficulty with these rates in the following year and four-years out.

After summer of 2019, the University began a full push on improving these rates through policy and programmatic changes documented in Standards 7.1 and 8.2c, in particular. (As a new University in the system, Florida Poly would not enter performance-based funding until 2020-2021 academic year.) While from a policy and support standpoint, we were shifting full focus on these metrics, it would take time and consistent reliance on review processes to identify causes and actions that could drive improvements in rates.

The Academic Progress Rate is a challenging metric that begins from day one a student sets foot on campus. The University tracks persistence rates (fall-to-spring re-enrollment) but these percentages were typically in the 90+% range, while our APR fell far below that level. We also identified a gap between our IPEDS retention and APR rates of a 6% average (rose to 9% during Covid, which was indicative of our forgiving policy stance). That gap between retention and APR is notable because it shows a percentage of students who are continuing but not successfully. If we identify the factors and resources to support them, the thinking goes, we can improve the rate. This informed policy decisions that were implemented and revised throughout 2020 – 2021 and in the current academic year that include things like additional grade forgiveness opportunities to first-semester freshman (with the requirement to retake the course the subsequent semester), and a waiver of the "suspension" from summer courses for students on probation at the end of their first year. This enables these students to

use summer to raise their GPA above a 2.0 while still remaining on the probation list for monitoring and progress assurance.

A key factor in our students’ failed fall semesters and subsequent decisions to leave is the state of Florida’s student funding support in the form of a scholarship called “Bright Futures” that most university-bound high-school students earn through GPA and volunteer hours. The scholarship requires a certain completion rate and GPA and when students are at-risk for losing Bright Futures, they tend to drop out or not return the second year. An analysis of this pattern revealed that corrections to academic performance need to be made in the first semester so students are set up for success in the second term because to initiate solutions in the second term would be too late to ensure the student met the scholarship’s criteria for continuation.

Retention is an important indicator of student success, progress to degree, and projected graduation. This measure is based on the percentage of first time-in-college (FTIC) students who started in the fall (or summer continuing to the fall) term and were enrolled full-time in their first fall semester and were still enrolled at Florida Poly during the next fall term with a grade point average (GPA) of at least 2.0 at the end of their first year (Fall, Spring, Summer). This cumulative institutional GPA aligns with a criterion for satisfactory academic progress that is a standard eligibility threshold for financial aid eligibility. The addition of this GPA criterion tied to second year retention makes this metric a more powerful leading indicator for a timely graduation.

When calculating APR, the number of students in the cohort serves as the denominator for the retention rate. The numerator includes student who meet two conditions: (1) enrolled during the second fall term, and (2) hold a GPA of 2.0 or above. Since this measure only takes two years to capture the data, Florida Poly has a historical six-year trend to support the chosen goals and thresholds.

APR	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Actual	73.0%	76.8%	65.1%	71.7%	65.4%	76.6%	63.8%
Goal		74%	75%	75%	76%	77%	80%
Threshold		70%	70%	70%	70%	70%	70%

The four-year graduation rate follows this same calculation, using the same fall cohort as the denominator (first-time-in-college beginning in the fall or summer-to-fall entrants, full-time only). The number of students in the cohort who graduated within four years (by the fourth summer term after entry) from Florida Poly serves as the numerator for the graduation rate. The table below provides a historical and current representation of the rate, our overall goal, and a threshold below which we do not want to fall.

Four-Year Graduation Rate	2014-18	2015-19	2016-20	2017-21
Actual	36.6%	39.5%	34.3%	38.1%
Goal	37%	37%	38%	40%
Threshold	36%	36%	37%	37%

QEP Steering Committee - Formal Topic Exploration and Recommendation Process

The Institutional Effectiveness Committee is a standing University committee chaired by the Vice Provost of Academic Affairs. This committee is charged with supporting the academic, administrative, and student support services assessment areas and, in most years, strives to provide feedback to units through review of plans and reports for quality. In the 2019-2020 academic year, the committee came together in early 2020, after the University's reaffirmation orientation at the 2019 annual meeting, to discuss the Quality Enhancement Plan as part of the institution's upcoming reaffirmation.

The Committee Chair explained the expectations surrounding QEPs and the committee leapt into action by discussing the student experiences in academic programs, including general education, and reviewing institutional data looking for gaps in achievement and places where the University's expectations were beyond the reach of student attainment.

The data gathered by the development team were synthesized into what has been presented so far and brought to the Steering Committee. The role of the Steering Committee was to identify the problem we were trying to solve and potential solution paths.

The committee met in January and February. In March, the pandemic hit, and the state was quarantined. The University's focus shifted to moving our entirely face-to-face instructional campus to 100% online in a period of about three days. Through the strong effort of our teaching and learning personnel, technology services support, and excellent leadership from our department chairs, we managed to have to reschedule only one set of common exams while the rest of our academic offerings went on as scheduled. The remainder of the spring term and summer 2020 focused on preparing the campus for a fall start and equipping and training faculty to deliver instruction in alternative modalities. Once the fall term began, the first half focused on close monitoring, adjusting, and assuring that the newly implemented protocols and process would continue to hold steady and manage the campus environment.

While between terms, the development team continued to review data to identify any variances from what we had already learned. By fall 2020, under Covid-19 distancing protocols and all the complications that come with managing a campus in the pandemic, the Steering Committee came together again – with some new members – to review the Development Team's data findings and suggest directions.

It was determined early on in these efforts that improving the academic progress rate was the most important metric to move. The APR is not only tied to funding but speaks to the heart of our mission in terms of ensuring that the students we bring in, we work with to ensure they graduate this University. APR is gateway to graduation rate, strong industry relations, impact on Florida economy, and so on. Once we identified our biggest problem, the Steering Committee decided that whatever solution we come up with, our Quality Enhancement Plan would focus on student achievement as measured by the Academic Progress Rate.

Deeper discussion centered around "how." The leading challenges presented included instructional methods, academic support, advising, and broader campus engagement. This was particularly noticeable in a pandemic year and, while to a degree this was expected, Covid-19 amplified existing problems in our student body in terms of student culture—namely engagement with campus and academic activities and services and the methods by which they go about solving them.

Brief Overview of Factors Impacting APR

In addition to the data, the Steering Committee discussed at length the institution's efforts around the areas of instruction, academic support, advising, and campus engagement. These discussions can be summarized as follows:

- Instructional issues – current methods and improvements via existing assessment processes are not resulting in change to either learning outcomes or the more noticeable problem of DFW rates.
- Academic Support – or, tutoring-services, as noted comes with high expectations from students and parents that tutoring will be widely available. The University chose, early on, to move tutoring under the purview of the academic departments, so the Math Department, for example, would identify and hire tutors who would provide support to fellow students. Natural Sciences identified (mostly Physics) tutors as well and for other courses in the curriculum study groups were promoted as a mechanism. This, along with faculty office hours, constituted the primary thrust of academic support services, although over time other models and efforts have been undertaken. Math, Physics, and some level of computer programming support constituted the identified need and places where formal peer-to-peer tutoring would take place.

At the onset of the pandemic, the need to move everything virtual was immediate and widespread. One of the tools the University employed to keep students connected to advisors and tutors was ConExEd, which serves as a scheduling, video-based platform that facilitates individual and group study and instruction. The Teaching and Learning Department largely coordinated this tool with inputs from Math and Natural Sciences, and the Academic Success Center used it as a method to keep engaged with students for coaching or advising purposes.

- Advising – the Academic Success Center (ASC) largely supports student registration advising, while departments support students in terms of curricular choices for career and real-world experience. The ASC also provides academic coaching and coordinates some degree of student learning support by being a place where students can find study groups. The achievement gap is clearly not the result of advising or registration, but there remains some gap in students' ability to acclimate to life at Florida Poly. This may be a campus environment issue, or it may be an academic issue, or both.

The University's Academic and Professional Skills course (the first-year experience course) underwent a series of reformations since its inception. The course, however, has never had the impact desired and while a small number of students feel they benefit from it, its impact has not been positively experienced. DFW rates for this course rose and fell with different instructors and models and, in short, numerous focus groups with students illuminated the concerns all had, which was that its impact and value to the curriculum was a serious place of concern. Originally delivered by faculty, the course suffered from an engagement gap and clarity of purpose. The model was shifted to where a key instructor and the ASC collaborated to deliver the course with a strong emphasis on core academic success skills. This did not particularly move the needle either in terms of results, although the DFW rate improved somewhat.

The course, along with Intro to STEM and Concepts and Methods (the latter two having a more technical focus) were unsuccessful in creating the kind of culture the University desired for its students. Coherence among these courses as well as across the rest of the first year in terms of expectations, messaging, content alignment, was not present at a level that would facilitate the kind of academic culture the University feels is necessary for future STEM professionals. In short,

we have a common first year in name and by any schedule or plan of study, but the deeper network of activities and engagement has not been present.

- **Campus Environment:** Difficulty in the common first year points to some of the campus environment difficulties. One data point (initially anecdotal and later measured based on homework completed) that accounts for much of the 30% gap in achievement is student engagement with appropriate campus environments and programs that will encourage their academic pursuits. Based on a range of campus inputs, students enter Florida Poly and many of them stay in their rooms and play video games, not managing to come to class or even participate in healthier campus activities. The remote learning environment of the pandemic also amplified this as it became evident students would not turn on their cameras and simply were not turning in assignments or attending class in any of the ways made possible for them. This includes all resident students (about half the student body).

Steering Committee's Actions

Based on the data provided and the professional experience of its members, the Steering Committee identified a list of potential topics that could positively impact APR and therefore student achievement.

Figure 1. Seven Possible Topics Submitted to Leadership Team

Topics	Priority
Phoenix Gateways (1 st -year & gateway courses, e.g. Calc, Phys, Chem, etc.)	1
Phoenix Foundations (Sequence) (i.e. Academic/Professional Skills, Intro to STEM, Concepts & Methods, Intro to Computation & Programming)	2
Coaching 2.0 (focus on advising enhancements and peer mentoring)	3
Improving Calculus (primarily focused on improving calculus)	4
Undergraduate Research-Projects (curricular/co-curricular options)	5
Service-Learning	6
Global Learning (mostly curricular effort)	7

The Steering Committee submitted its initial findings to the University and Reaffirmation Leadership Team (the President's Cabinet, plus the accreditation liaison) with its identification of priorities for potential topics.

The Leadership Team discussed the topics in their cabinet meeting on October 19, 2020 and narrowed the list to four topics and included a fifth of their own. The four from the list were as follows:

2. Leadership Team's Top 4

- Phoenix Gateways (1st-year & gateway courses, e.g. Calc, Phys, Chem, etc.)
- Phoenix Foundations (Sequence) (i.e. Academic/Professional Skills, Intro to STEM, Concepts & Methods, Intro to Computation & Programming)
- Coaching 2.0 (focus on advising enhancements and peer mentoring)
- Improving Calculus (primarily focused on improving calculus)

The fifth topic advanced by the Leadership Team, was in the area of campus life traditions, which was further defined based on input from the Vice Provost of Student Affairs and the Vice Provost of Admissions and Financial Aid who were in the process of developing University affinity groups: specially supported student groups that students could be recruited into, receive scholarships for, and would form a relationship to other than their academic affinity to the University. One such existing example

was the University's recently developed "scatter band," modeled after Stanford University's own scatter band, which had almost immediately drawn in thirty student participants.

The QEP Steering Committee folded the fourth topic, Improving Calculus, into Phoenix Gateways as it considered Calculus as a gateway course, and kept the total topic list at four with the addition of Campus traditions or "teams" as it became labeled.

Four Focus Areas Described

After Leadership input, the Steering Committee sought the broad-based input from campus stakeholders. The Committee first defined each focus area, then developed an online survey and schedule focus group meetings to solicit feedback from all areas of campus and industry participants. The areas were described in the following way:

Gateways

Florida Poly's students are required to pass several gateway courses during their first two years before beginning courses for their chosen major. In a national study of students who leave STEM majors, a majority of students mentioned factors relating to their experience in gateway courses (Seymour & Hunter, 2019). Bringing evidence-based approaches to designing, teaching, supporting, and coordinating gateway courses can have considerable and positive impacts on student success and retention.

Foundations

The University looks to improve its first year "Foundations Sequence" and solidify it as a unique institutional marker that distinguishes the Florida Poly experience and sets up students for academic, professional, and student life success.

The Foundations Sequence courses include:

- SLS 1106 - Academic & Professional Skills
- IDS 1380 – Introduction to STEM
- EGN 1007C – Concepts and Methods for Engineering and Computer Science
- COP 2271C – Introduction to Computation and Programming.

Course content in the three disciplinary courses (STEM, Programming, Concepts & Methods) has been overhauled to better link to, support, and augment curricula in the first year, the majors, and for professional foundations; however, the foundations sequence still has areas for improvement: coherent, comprehensive institutional buy-in that ensures consistency and continuity of delivery, support, and strong links to discipline and career. Additionally, the sequence needs to better bridge the development of academic habits and campus life engagement.

Coaching & Academic Support

One of the most significant metrics for any university is the graduation rate for its students. Evidence shows that one-on-one guidance, early identification of issues, academic advisement, and support can promote college completion. This topic area broadly encompasses academic support including academic and skills coaching, registration advising, internship and career support, and the range of different student learning and academic management support systems, tools, and resources that would be needed to provide a robust backdrop for all Florida Poly students.

Student Teams

This program puts emphasis on expanding Florida Poly’s current extra-curricular opportunities in the form of student Teams. This is not “athletics” in the traditional sense or even any particular sense at all, but clubs that generate more selective, competitive-level engagement groups on campus. Examples of Teams underway or in development include Phoenix Scatter Band, Esports, Women’s Club Soccer, Men’s Club Lacrosse, and Robotics. Other examples include a formal entrepreneurship competition club, engineering “big build” teams, or other disciplinary-focused competitive groups. Creating teams would significantly enhance campus living, alleviate stress, promote teamwork and healthy lifestyles, and bring greater connection to peers and school pride. Such activities have proven to increase retention and student satisfaction, which is especially important within STEM disciplines that are highly demanding and intense. The development of an electric, vibrant campus culture strengthens the support fabric and kinetic energy that drives creativity.

Steering Committee Processes

The Steering Committee divided its forces. Some worked on a literature review associated with each topic area to get a sense of the research and applicability of the topic area to our problem and our University.

A second set of personnel coordinated focus group meetings, developed a script for these meetings, collected and analyzed the data.

A third set of personnel developed a survey, tracked, and analyzed results for the Committee.

The literature review may be found in Appendix 3 (note, this is a preliminary literature review; our primary QEP literature review is found in part II of this document with the plan.) Details on the focus group process and survey results follow.

Focus Group Process

The [Focus Group script](#) helped to clarify and outline these categories as well as outline potential directing questions to solicit input useful to reaching a focus topic and calling out key areas of need. As noted, the Steering Committee defined each focus area so that stakeholders would have a sense of the emphasis, purpose, and be able to deliver input on whether it was the right focus, their experience, and what would be important to include if pursuing this topic.

The Steering Committee identified multiple stakeholder focus groups to interview and obtain feedback on potential topics. These groups included the following:

- Faculty Groups
- Gateway course instructors
- Foundation sequence instructors and stakeholders
- Degree program faculty
- General faculty
- Staff Groups
- Student Affairs, Registrar, Academic Support Services, Admissions
- Students
- Industry Partners

Several focus group meetings were held in late fall and into the spring semester. Most of the student sessions were held in spring as the University went “full-remote” after Thanksgiving break. (See [Appendix 2](#) for partial list of focus group announcements in the University’s “Weekly Phoenix.”)

The focus group process was intended to take place in early fall 2020 but started late that semester and spilled into the first two months of spring 2021. The impact of Covid-19 posed complications for gathering significant amounts of feedback. While all focus group meetings were held on MS TEAMS, the Steering Committee felt that the limited person-to-person interaction, coupled with the complications posed by the pandemic to deliver just the necessary effort for students, faculty, and staff made the engagement less than optimal. While we might have hoped for larger, more robust forums. The Steering Committee felt that under the circumstances the feedback gathered was useful and even had we been able to expand the size, the substance of it would not have likely changed much.

Board of Trustees

Among the more essential groups with whom the QEP planning and topic focus was discussed was the University’s Board of Trustees. Kept apprised of progress toward reaffirmation at each Board meeting, the trustees were similarly provided opportunity to consider the prospective topic and especially the key metrics that the University sought to improve. The Board agreed with President Avent’s statement that APR is the most significant item for the University to focus on in the next year. Trustee Earl Sasser, who chairs the Academic and Student Affairs Committee, emphasized that “APR is the item he wants trustees to remember most.” (BOT Minutes, May 3, 2021. 4).

Results from Focus Group Meetings

The Focus group team of the Steering Committee collected and summarized inputs from stakeholder under each of the four topic headings and identified dominant themes. This input was the most valuable in shaping the Steering Committee recommendation of final topic.

Topic 1 – Gateways

Faculty and staff defined gateway as courses that provide fundamental skills, teach prerequisite skills and define theories. Gateway courses enforce the competencies students will need to move forward in their degree program. These courses are used as an indicator as to how students will do in higher level courses. Graduating seniors and students felt that in some cases, gateway courses are used as a filter for success. These courses sometimes offer a “redemption” program for students who struggle with these courses. Collectively, the focus groups considered Gateway courses to include but not limited to Physics 1 and 2, Electrical and Circuits 1, Calculus sequence, Introduction to Programming, Dynamics, Thermodynamics and Systems & Signals.

Topic 2 – Foundations

Foundation courses are courses that focus on a common first-year experience. The first year experience prepares students for success by developing persistent day to day practices, an academic toolbox for success and the development of good habits. These courses have determined outcomes and provide an even playing field for students. Foundation courses define expectations and allow students the chance to make changes to their academic path. Students can find their community through a

holistic approach to academics and student growth by creating campus culture. Students felt that there is a need to redesign the curriculum of these courses and create a balance between the content and volume of assignments. Foundation sequence curriculum needs to also be sustainable. Students suggested that Foundation courses should be limited to “traditional” first year students, dual enrollment or students who do not meet the admissions standards. Collectively, stakeholders believe the Foundation courses include but are not limited to Introduction to STEM, Introduction to Computation & Programming, Academic and Professional Skills and Concepts and Methods.

Topic 3 – Coaching & Academic Support

Coaching and Academic Support should be a campus-wide effort. Student felt that the University should provide academic advising, help from faculty, tutoring, student training, academic probation program, academic improvement plans, degree audits and road maps for each degree program. Graduating seniors and students are interested in degree awarding departments and faculty playing a bigger role with the Academic Success Center. Students also believe that one-on-one tutoring, mentoring, early establishment of student groups and recitation would have a strong impact on student success. Internships and peer mentoring should be integrated into Academic Support. Students feel they should be approached with the options the University offers instead of students having to search for options.

Topic 4 – Student Teams

Student Teams presented the idea of fostering a better sense of community at the University. Industry partners and students showed interest in affinity groups. The groups could have student chapters, Regional or National memberships. The teams would be tied to a field of student to help academically and would invest in faculty mentorship to create sustainability beyond student life. Student teams would increase academic competitions and promote athletics. Industry support would create a bridge between students and the community allowing opportunities for internships and sponsorship. Incentives would also encourage students to engage in student teams.

Dominant Themes

As a whole, there was a significant divergence of opinion between faculty/staff groups and student groups. Overall, faculty and staff groups seem to favor a focus in either the foundation sequence or gateway courses, whereas student groups tend to favor more structured tutoring (Academic and Support Services) and efforts put towards teams and affinity groups. It is also important to note that each of the groups were also asked what they saw as least likely to improve academic success. Here faculty and staff pointed to teams and support services, while students thought changes to gateway and foundations courses would not be the most successful venture.

Embedded within the focus groups there were very strong opinions among participants that at times diverged from the general trend. For example, while students were generally not in favor of revamping the foundation sequence, there was still a strong voice that the courses should be more connected to one another and work to introduce them to more faculty. Conversely, while faculty and staff did not always favor significant changes to academic support services, there were again strong voices that advocated for better advising to keep students on track to graduate in 4-years.

Since our University is relatively small some individuals were present in multiple focus groups, say for example faculty that are foundation course instructors and represent a degree granting department. The trend of repeat voices also occurred within the student focus groups with graduating seniors also coming to the open forums.

Aside from the broad characterizations and dichotomies discussed above the following are some generally well agreed upon statements across all the focus groups:

- Students want to feel connected to the University beyond the classroom
- Faculty and staff see success in the calculus sequence as critical to success at the University
- Improvements could be made to advising from both faculty and student viewpoints
- Gateway and Foundation courses could be more cohesive and build upon one another (faculty/staff and student sentiment)
- Students do not like that the ASC is no longer a desk in the commons and feel that the new ASC is out of the way and signals “people think we are in trouble if we go in there”
- Not all faculty are cognizant of the implications of teaching a Gateway or Foundation Course

As presented, the steering committee overviewed 4 potential areas to improve student success within the focus groups. Feedback from the focus groups suggests that perhaps a hybrid approach may be warranted, for example strengthening calculus supported by robust tutoring or recitation sections, along with improvements in the advising process, and the roll-out of select affinity teaming groups.

QEP Survey

To facilitate topic selection, the community of faculty, staff, and students were all invited to take part in a survey which explained the four topics and solicited feedback regarding strengths and weaknesses of each topic. The survey opened on November 30, 2020 and closed February 19, 2021. Included here are the results of that survey, broken into categories and separated by stakeholder group. The data is taken from a total of 99 submitted responses.

DEMOGRAPHICS

- Faculty – 25 25.25%
- Staff – 53 53.54%
- Students – 21 21.21%

The final question of the survey asked the respondents which topic they believed had the greatest potential to help Florida polytechnic University improve student achievement.

Given the above options, what do you see as having the greatest potential impact on improving student achievement (student learning or student success as demonstrated through retention and degree completion) at Florida Poly? Feel free to name one or a combination of the above elements.

81 of the respondents answered the question.

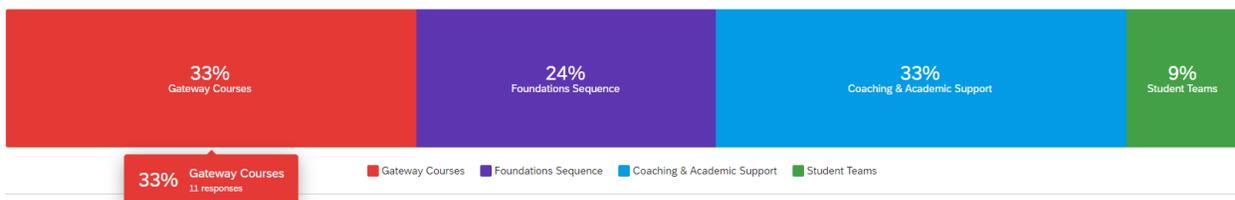
Faculty, Staff, and Students Combined:



#	Field	Choice Count
1	Gateway Courses	21
2	Foundations Sequence	18
3	Coaching & Academic Support	27
4	Student Teams	15
		81

Below is the breakdown of topic choice by demographics.

Faculty:



#	Field	Choice Count
1	Gateway Courses	11
2	Foundations Sequence	8
3	Coaching & Academic Support	11
4	Student Teams	3

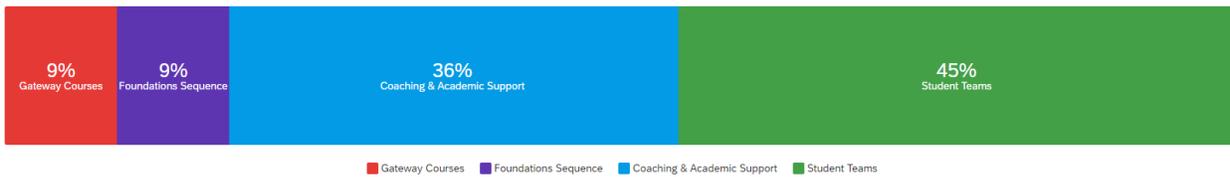
Staff:



#	Field	Choice Count
1	Gateway Courses	24.32% 9
2	Foundations Sequence	24.32% 9
3	Coaching & Academic Support	32.43% 12
4	Student Teams	18.92% 7

Chart created by E&E

Students:



#	Field	Choice Count
1	Gateway Courses	9.09% 1
2	Foundations Sequence	9.09% 1
3	Coaching & Academic Support	36.36% 4
4	Student Teams	45.45% 5

Anecdotal remarks were included in many of the survey responses, offering both pros and cons of each topic. Comparing the data between demographics, the top two choices of each demographic are as follows:

- Faculty: Gateways Courses and Academic Support both received 33% of the votes
- Staff: Academic Support 32% and Gateway Courses and Foundation Sequence both received 24%
- Students: Student Teams with 45% and Academic Support at 36%

Survey results show a consensus toward focusing on Coaching and Academic Support most consistently.

The Final Topic Recommendation

The Steering Committee submitted its final recommendation to the President’s Leadership Team on March 14, 2021. The proposed topic would be Florida Poly Engaged Education Project, with the focus on peer-led learning.

The idea came as synthesis of a range of themes, but a strong emphasis on improved, coordinated academic support services emerged as central to moving the needle on the DFW rates and subsequently, on the Academic Progress Rate.

The Committee also discussed the student culture and the multiple qualitative inputs through the process and outside the process where it became evident that students turn to each other on both what to learn and how to learn in their college courses. Turning to each other does not simply mean other peers on campus, but to social media and online learning sites. The faculty become, in some sense, just one of the inputs on the subject. How this dynamic has been created is the subject for a far different and in-depth study, but the Committee felt that by accessing this peer-network and providing some guidelines and incentives in terms of campus leadership experience and their own learning processes.

Overall, the feeling was that through a coordinated peer-support program, the University could improve student course and progress rates, improve student academic culture through peer-supported coaching, and enhance the overall student engagement experience with student-led peer support in broader areas of student life.

Summer 2021 – Interval

At the SACSCOC Summer Institute, our Department Chair of Mechanical Engineering, Dr. Mary Vollaro, who had been spearheading much of the content, organization, and delivery of the foundations sequence technical courses attended the SACSCOC Summer Institute.

At the Summer Institute, Dr. Vollaro listened to Leonard Geddes deliver his talk and found in his research a critical component to helping students succeed in two key Florida Poly foundation courses: Intro to STEM and Concepts and Methods. Dr. Vollaro worked with the Provost and set up meetings with Mr. Geddes, whose company the University contracted with in fall 2021 to bring forward Metacognitive Learning techniques and Peer Learning Strategists who would work hand in glove with faculty in a peer-learning support function, particularly in the area of learning strategies.

This became the pilot 1 phase of our QEP.

II. Florida Poly Engaged Education Project – the Plan

Florida Poly’s Engaged Education Project is a multifaceted enhancement plan that draws on student currency using peer learners, focused learning support methodology, and intentional, integrated support connections from faculty to peer leader to student learner with the objective of improving student achievement as measured by Academic Progress Rate and Graduation Rate.

1. Peer-Led Learning

FL PEER utilizes the benefit of peer-led learning to improve academic engagement, student course performance, and transform student culture into engaged learning behaviors and strategies for student achievement.

Two facts are apparent in our current student culture that make a shift in student culture important for the University – 1. A strong expectation for academic support services (“tutors”); 2. An awareness that for much of our student body, their mindset is such that “class and the professor” is merely one take on the subject to be supplemented by a range of other non-institutional methods of learning (e.g. YouTube). This latter mindset has been promulgated by a subset of the student body who has been marginally successful and vocal about “how to get through Florida Poly.” The majority of research on student learning culture looks at cultural backgrounds of students rather than the culture created within institutions with a persistent focus on international students. While certainly valuable, it does not address the focus of this plan, which is transforming the student learning culture that has developed within the institution.

It may be that such a culture and the cultural change process is a result of a new University that has undergone transformative change on a high-speed basis within its first seven-eight years of operation. From a public perspective, students and families took a chance on spending their education at a brand-new, unaccredited University in 2014 – 2016. From the institution’s perspective, heavily subsidizing student tuition and fees was the major tool for drawing in a student population. The University has come a long way in terms of improved “class-shaping” and drawing in more experienced faculty leadership.

In the meantime, however, the student culture that developed is not necessarily the student culture a University aspires to, particularly a University intending to become a leading engineering and applied science University in the eyes of the State of Florida and beyond. It should be understood that our incoming classes were highly qualified from a test-score standpoint and other metrics, but there remains a huge gulf between the culture that a first student body creates and on that has decades of making behind it found elsewhere.

From the standpoint of the Development and Steering Committees, training students in specific, grounded ways of delivering learning support and a deliberate focused program of peer-led learning was a necessary means to moving the student academic culture to one poised for success both academically and in the workforce.

The next two facets of this plan came together as a natural outgrowth of that concern. How would the students be coordinated and what methodology would differentiate college from high-school learning and hit students at a level where they see the change? A second facet was how to ensure that the peer-led project is integrated with academic coursework, expectations and standards set by faculty. Otherwise, the project is likely only to perpetuate an existing culture problem if it is not connected to a thoughtful methodology and directly to course instructional expectations and standards.

2. Learning Support Methodology

As is often the case in research and institutional projects, chance affords the prepared mind. Professor Mary Vollaro, Chair of Mechanical and Environmental Engineering and coordinator of key first-year foundations sequence courses was looking for a new approach for the faculty teaching our Introduction to STEM course, which seeks to bridge mathematics gaps between concepts and disciplinary application. The SACSCOC Summer Institute in 2021 featured Leonard Geddes, Founder of The LearnWell Projects, as a keynote speaker whose talk “Metacognition: A Foundation for Closing and Eliminating Achievement Gaps” provided inspiration to Dr. Vollaro who arranged a meeting between Mr. Geddes and the Provost.

The academic leadership team had been looking for something that would distinguish our peer learners from falling into “old habits” and move the quality of peer-led learning to a transformative space. An exploration into and a focus on metacognitive learning strategies would be used to crack the code on college learning and facilitate academic transition from high school to college-level standards and work expectations.

By end of summer 2021, the University partnered with LearnWell Projects to work with faculty on reviewing learning outcomes to include higher-level orders of thinking and to train peer leaders in learning and speaking the language of metacognitive strategies.

More detail on this pilot is provided in a later section of this plan.

3. Integration between Faculty and Peer Learning Strategists

The program could not simply be thrown over the wall for coordination among staff to pull together student leaders, train them in metacognition, and hope for the best. If the program stands outside of faculty responsibility (course content, delivery, assignments, and expectations), then it is unlikely improve University metrics in an efficient or even discernible way. By coupling the Peer Learning Strategists with specific courses (and course coordinators¹), a direct link is made between classroom content and leaning strategies advanced by both peer learners and faculty.

Again, more detail will be provided later in the plan on the discussion of the fall 2021 pilot, but in short, the University chose to solicit orientation leaders for the PLS (Peer Learning Strategist) program and assign them to Introduction to STEM and three mathematics courses: Pre-calculus, Calculus 1 and Calculus 2. This would “cover” the entire incoming first-year population as all students would be in at least one of these courses in their first semester. Students would be required to visit a PLS as part of the course and metacognitive strategies would be reinforced by changes in learning outcomes and use of metacognitive tools in course delivery.

¹ Multi-section courses at Florida Poly operate on a course-coordinator model where all faculty teaching the course adhere to the same basic syllabus, content standards, assignments, exams, and so on. Coordination includes collaborate test design, and course coordination leadership and participation are components of faculty annual review and reappointment and promotion standards.

Review of Literature

When students enter a post-secondary institution, they are forced to transition from the structure they have known for the past twelve years into a completely different one. Many students who were confident in their academic abilities in high school find themselves struggling and ill-prepared for the increased rigor and expectations of them (Cummings, 2016; Mytkowicz, Goss, & Steinberg, 2014; Yue, Castel, & Bjork, 2013). Unfortunately, these often become less engaged and withdrawn instead of seeking out assistance from their professors, further exacerbating the problem. This literature review focuses on the impact that both peer-tutoring programs and metacognitive skills have on student achievement.

Peer-led Tutoring

Peer-assisted learning (PAL) programs, including peer-led tutoring, have been topics of research for more than three decades with results typically showing gains in students' learning, grades, and retention. In recent years, more attention has begun to be given on the effects of these programs within STEM disciplines. Fortunately, like that of predecessors, the literature is showing that these programs work.

Drane, Micari, and Light (2014) evaluated a peer-tutoring program for STEM disciplines over a span of 10 years. In every STEM class where peer-led tutoring was offered, the course grades of students who participated were statistically significantly higher than those of non-participants. While these statistics hold true across all demographics, the effect size was even greater for underrepresented groups. In an era where the achievement gap is being monitored not just by universities and the government, but also the general public, ensuring that academic assistance provided to student not only does not add to the achievement gap, but actively helps decrease it, cannot be undervalued.

Pointing out that the majority of attention, and research, is given to first-year students enrolled in developmental or other low-level mathematics courses, [Duah, Croft, and Ingles \(2019\)](#) focused their study on two mathematics courses that second-year students typically take. Like the studies that focus on developmental and lower-level math courses, they found that the PAL program had a positive impact on students' grades. In one class, they found that students earned 1.2% higher on their final exam for each PAL session they attended. With 9 sessions being offered during the term, students who attended every session earned scores over 10% higher than those who did not attend any sessions. In another other course, students earned on average a 1.1% higher grade on the final for each session, nearly replicating what they discovered in the first.

In addition to looking at why PAL programs are successful, the literature tells us why students choose to participate, and the number one reason is to improve their grades (Marrone and Draganov, 2017). While these programs seemingly have the same goal as the students they serve, the literature also shows that it is ultimately up to participants to choose to attend. Most of the research found on peer-led tutoring has indicated that the tutoring was optional and not a required component for a class. Therefore, to best help students, it is important that students who attend peer-tutoring session receive the help they need and feel that the sessions are valuable.

The literature helps guide us to the necessary components for a peer-tutoring program to be successful which are facilitator training and structure of tutoring sessions. Training for peer tutors is an essential component and should include on-going mentoring or coaching by both the trainer and the faculty within the discipline. Each training session should include discussion, demonstration, and time for

practice. Additionally, there needs to be follow-up training sessions, not a one-day training. This allows the peer tutors to reflect, evaluate themselves, and receive feedback from not just the trainer and faculty, but the other peer tutors as well (Cheng and Walters, 2009; Drane et al., 2014; Duah et al., 2019, Topping and Ehly, 2001).

When structuring the tutoring sessions, they should be done in a way where the peer tutors have a plan on what to review and how to review, but also includes enough time to be flexible to ensure that the participants' needs are being met. Having this kind of structure allows participants to be able to ask questions as they arise and ensuring their needs are met. Additionally, this structure is what differs from the typical classroom environment where students attend a planned lecture with little time to work on problems on their own and ask questions as they please (Cheng and Walters, 2009; Drane et al., 2014; Duah et al., 2019, Topping and Ehly, 2001).

Another benefit of peer-led tutoring programs that have been structured to include flexibility is that they can allow time for participants to evaluate their own learning. During each session they are able to take their time to think through problems at their own pace. They also get to hear how their peers are working through the problems and how they are learning, too. This, according to Drane et al. (2014), allows students to assess their own cognitive processes; a benefit some PAL programs are taking specific measures to include in their programs as the inclusion of higher order and thinking skills has been found to lead to better learning (Topping and Ehly, 2001).

Overall, peer-led tutoring programs have seen much success, both for students and the colleges and universities they attend. They are attributed to increased learning, higher grades, retention, and student's perceived satisfaction (Drane, et al., 2014). If done correctly, there is no reason to believe that a peer-led tutoring program would not be successful at Florida Polytechnic University.

Metacognitive Skills

Similar to the literature on peer-led tutoring, numerous studies have been done on metacognitive skills and have found a positive correlation to student academic achievement. Ward and Butler (2019) found in their study of first-year students from a general education course that students who had a higher level of metacognitive awareness, based on the Metacognitive Awareness Inventory (MAI), had higher cumulative GPA's than their peers who scored lower on the MAI. They also found that the higher-level awareness allowed students to perform better because they were able to know when to deploy specific academic strategies, recognizing when one strategy should be used over another.

Research also shows that the metacognitive awareness that students enter college with is not stagnant. They can be taught metacognitive knowledge and regulation and see the positive effect from growing their metacognitive awareness within a single year. Mytkowicz, Goss, and Steinberg's (2014) study found that first-year students enrolled in a two semester learning strategies course reported improved metacognitive awareness in the Spring semester compared to the Fall on the MAI. Additionally, the scores for the regulation component in the Spring were significantly correlated with students' GPAs. Important to note for replication, this course did not just teach students about metacognitive skills, but also asked them to apply those skills and reflect on it.

The ability to reflect and apply metacognitive knowledge or skills is widely known as metacognitive regulation. Studies like Mytkowicz et. al.'s (2014) that look not just at students' metacognitive knowledge but also at their metacognitive regulation, often find that it's the most important factor in academic performance. Ku and Ho (2010) added to this when they observed that high-level skills are

reflective of both metacognitive knowledge and regulation as those with low-low level skills are not able to go beyond their own awareness and participate in regulatory activities that would improve performance. Pelton's (2014) study also backed this leading her to conclude, "We can help students move from novice to expert learner and from surface to deep learning if we encourage them to engage in metacognitive self-regulation" (p. 285).

Moreover, success is not just seen with first-year students, but also students who have been placed on academic probation due to falling below GPA requirements set by their university. Rezvan, Ahmadi, and Abedi (2006) conducted a randomized experimental study with students who were on probation and found significant positive results in improved student achievement and student's mood. The experimental group attended 6 sessions in small groups ranging from one-and-a-half hours for the first two sessions to two-and-a-half hours for the last four sessions. During these sessions they were taught about metacognition, asked to reflect, provided feedback, given the opportunity to give feedback to peers, work on problem solving in groups, analyzed what they were doing, and asked how they could apply these skills on their own. Students were motivated to continue coming to the sessions because they could see the benefits as they were asked to apply the skills. This is also likely why their mood improved over their control group.

While literature shows that metacognitive skills can be improved, the proper amount of time needs to be set aside to allow this to happen. Students can achieve higher metacognitive awareness in a single semester, but they are unlikely to in a single session. Even if they can understand metacognitive awareness in a short-time frame, they need additional time to be able to apply the skills, reflect, and try again to grow their metacognitive regulation. Therefore, to assist our students at Florida Polytechnic University with metacognitive skills, the literature tells us that we need to have dedicated time set aside to teach these skills, provide opportunities to apply these skills within their courses, and give them time to ample reflect.

Summary

As universities face increased pressure to produce high achieving graduates within four years, they must continue to develop and adapt their practices. For Florida Poly, the literature review conducted highly supports our plan to develop a peer-led tutoring program that has an emphasis on metacognitive skills. This should have a positive effect on student academic achievement, and according to several of the studies, help students who have become discouraged or withdrawn to see ways that they can be successful (Mytkowicz, et al., 2014; Rezvan, et al., 2006).

Plan Phases and Implementation Timeline

The 2021 – 2022 academic year is a pilot year for the program that will focus on the core academic components at the heart of the project. Subsequent years will include efforts to branch out peer-led support to a range of non-academic, or academic support peer leadership functions. These efforts will build on existing initiatives but forge a more direct connection to learning strategies as coupled with "career-strategies" and "life-strategies."

Quick View of Implementation and Plan Timeline

2021 – 2022 Academic year: Pilot year

- focuses on creation of peer learning strategists, metacognitive methods, and integration between faculty, Peer Learning Strategists (PLSs), and students in first-year courses.

2022 – 2023 Academic Year: Implementation year

- focuses on training all student peer-learning roles in metacognitive methods and establishing a specific location for PLS sessions and related academic support. Further engage faculty in methods and continue course integration beyond freshman year.
- Identify existing peer-support functions and best methods for integrating into the broader “Engaged Education” project.
- Identify and develop role and function for peer-coaching leaders to support Academic Success Center or other appropriate student support entity (e.g. career/internship services) in foundational skill building and ongoing academic and life management strategies.

2023 – 2024 Academic Year: Full implementation of Program

- PLS / Peer-led learning support program
- Faculty development
- Integrated function between PLS and course coordinators
- Peer Coaching program

2024 – 2027 Academic Years: ongoing assessment and improvement

FL Peer Assessment Plan

The assessment plan for the **Florida Poly Engaged Education pRoject (FL PEER)** focuses on measuring student achievement as evidenced in key institutional metrics:

1. **Academic Progress Rate** (1st – 2nd year retention of FTIC cohort at 2.0 or above)
 - a. Academic Progress Rate **among Pell Recipients** (same measure, subset population)
2. **Four-year graduation rate** (summer/fall FTIC cohort completing their degree within four academic years including the following summer).
 - a. Four-Year Graduation Rate **among Pell Recipients** (same measure, subset population)

Summative Assessment: Baseline and Targets

As reported on the [University’s Accountability Plan](#), the most recent data and goals related to four-year graduation rates, APR, and Pell-APR are included here with updated results to reflect changes between the most recent report and the upcoming report in May 2022.

Graduation Rate

As reported in May 2021

4. FTIC Four-Year Graduation Rate [Full-time, First Time in College students]

	2012-16	2013-17	2014-18	2015-19	2016-20	2017-21	2018-22	2019-23	2020-24	2021-25
ACTUAL	.	.	36.6	39.5	34.3	.	.	.	.	.
APPROVED GOALS	.	.	37	37	38	40	41	42	42	.
PROPOSED GOALS	41	43	42	41	45

The current, unofficial (not certified by the Board of Governors yet) 2017 – 2021 four-year graduation rate is 36.3%.

The University does not report Pell four-year graduation rate on its Accountability Plan, but will track the data for comparison for the QEP. Note, too, that the University only started receiving Pell funds in 2017. Thus, 2021 was the first year where we could measure the graduation rate for students who at any point received Pell Funds.

The current 2017 – 2021 Pell four-year graduation rate is 33.04%.

Academic Progress Rate

As above, the reported APR in the most recent Accountability Plan is noted below. The uncertified rate for Fall 2020-2021 is 63.8%.

As reported in May 2021

5. Academic Progress Rate [Second Fall Retention Rate with at Least a 2.0 GPA for Full-time FTIC students]

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
ACTUAL	76.8	65.1	71.7	65.4	76.6	.	.	.	.	.
APPROVED GOALS	74	75	75	76	77	77	80	83	83	.
PROPOSED GOALS	.	.	.	.	.	66	75*	82	83	83

*Note: The 2020-21 goal is lowered due to student difficulties with COVID during the year. The 2021-22 goal is also lowered based on the learning loss for students entering as FTIC during the COVID period.

Because the University only began dispersing Pell funds in 2017, it has not yet reported graduation rates associated with Pell recipients. However, the Accountability Plan captures the second fall retention rate for Pell recipients for Florida Poly (for other State University System schools it counts graduation rate).

As reported in May 2021

9b. BOG Choice: Pell Recipient Second Fall Retention Rate [Full-Time students]

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
ACTUAL	.	.	78.1	67.7	87.8	.	.	.	.	.
APPROVED GOALS
PROPOSED GOALS	66	80	82	83	83

The second fall retention rate for Pell recipients was 65.4% with an academic progress rate among Pell recipients only 3.9% lower at 61.5%.

In summation, the targets for these metrics are as follows:

Measure/Year	2018-2022	2019-2023	2020-2024	2021-2025 (Pilot Cohort)	2022-2026
Four-year Graduation Rate	43	42	41	45	46
Four-year Graduation Rate Pell	40	39	38	42	43
Measure/Year	2021-2022 (Pilot cohort)	2022-2023	2023-2024	2024-2025	2025-2026
Academic Progress Rate	75	82	83	83	85
Academic Progress Rate Pell	71	78	79	80	82

Formative and Other Assessments

The following formative assessments, indirect assessments, and other “cultural change” markers will be tracked and monitored to gauge the efficacy of the program and its supporting activities:

- Midterm and Final Course Grades:** (Fall and spring term DFW rates for first-year courses). The initial target is a general target for each course listed below based on past performance. It does not reflect an expectation of immediate achievement nor ongoing stasis but represents what at this point the University perceives as an acceptable rate for the specific course.

The monitoring of these rates is chiefly for the purposes of identifying areas for action within a given term. For example, if midterm grades indicate a course is moving in the wrong direction, course coordinators, faculty, and academic support resources (including PLSs) can change tactics to address deficits.

As end of term rates, they serve as indicators of difficulties in a population or course and more focused analysis can be conducted to identify areas for improvement.

Course Code	Course Name	Target DFW Rate (initial)
IDS 1006	Career Design for STEM Programs	<14%
IDS 1380	Intro to STEM	<14%
COP 2271C	Intro to Computation and Programming	<18%
EGN 1007	Concepts and Methods for Engineering and Computer Science	<10%
MAC 1147	Pre-calculus	<30%
MAC 2311	Calculus 1	<25%
MAC 2312	Calculus 2	<25%
CHEM 2045	Chemistry 1	<15%
PHY 2048	Physics 1	<18%
PHY 2049	Physics 2	<18%
ENC 1101	English Composition 1	<10%
ENC 2210	Technical Writing	<10%
BSC 1101 or ENS	Biology 1 or Environmental Science 1	<10%

2. Internal Surveys related to PLS experience & Student Course Engagement

- a. The experience of Peer Learning Strategists will be surveyed or studied by focus group
- b. The experience of students engaging in PLS sessions will be survey or studied by focus group
- c. Faculty surveys related to quality of student engagement and performance pre & post PLS experience.

3. National Surveys

Florida Poly administers NSSE and the SSI on alternating years. The metrics below are set based on the most recent survey data. NSSE was administered in spring 2021. (One previous administration of NSSE in 2015 did not provide meaningful results as it was the University's first academic year).

- a. National Survey of Student Engagement (**NSSE**)
NSSE surveys first year students and seniors and compares results to three populations in the survey administration: Southeast Public institutions; Carnegie class, and total NSSE-administered population. There are four broad themes, each with supporting engagement indicators (or question sets). The broad themes are Academic Challenge; Learning with Peers; Experiences with Faculty; Campus Environment. For purposes of our assessment, we will focus on specific engagement indicators within each theme and look for positive change from freshman to senior year. As a secondary consideration, we will consider the ratings with respect to the three "cohort" populations defined by the survey administration.

NSSE also gauges responders’ engagement with an institution’s high-impact practices. For Florida Poly these include Research with Faculty; Internship or Field Experience; Study Abroad (nascent at this stage); and Culminating Senior Experience (Capstone).

Florida Poly administers the survey every other year. Over the course of the next two administrations, both of which will be conducted prior to the due date of the QEP follow-up report, we anticipate improvements in the following areas as noted. Objectives indicate desired increase by next administration.

Mean scores are used to establish and track metric. The scale is a 7-point scale, the higher representing a response of “very often” or “often” as an indicator of high engagement. Objectives are based on going above other NSSE administered peers.

Theme & Indicators	Metric
<p>Academic Challenge</p> <ul style="list-style-type: none"> • Higher-order learning • Reflective and Integrative Learning • Learning Strategies 	<p>First-year students</p> <ul style="list-style-type: none"> • HOL Baseline: 32.7 | Objective >44 • RIL Baseline: 32.4 | Objective >44 • LS Baseline: 33.8 | Objective >44 <p>Seniors</p> <ul style="list-style-type: none"> • HOL Baseline: 34.4 | Objective >40 • RIL Baseline: 32.5 | Objective >39 • LS Baseline: 32.3 | Objective >39
<p>Learning with Peers</p> <ul style="list-style-type: none"> • Collaborative Learning 	<p>First-year students</p> <ul style="list-style-type: none"> • CL Baseline: 28.4 | Objective >35 <p>Seniors</p> <ul style="list-style-type: none"> • CL Baseline: 38.6 | Objective > 45 (note, already above peers in this category)
<p>Experiences with Faculty</p> <ul style="list-style-type: none"> • Student-faculty interaction (3c, 3d – discussed topics outside of class, discussed performance) 	<p>First-year students</p> <ul style="list-style-type: none"> • SFI Baseline: 14.2 | Objective > 25 <p>Seniors</p> <ul style="list-style-type: none"> • SFI Baseline: 22.9 | Objective > 40
<p>Campus Environment</p> <ul style="list-style-type: none"> • Supportive Environment (questions b,c,d,e,f,g) 	<p>First-year students</p> <ul style="list-style-type: none"> • SE Baseline: 28.7 | Objective > 39 <p>Seniors</p> <ul style="list-style-type: none"> • SE Baseline: 28.3 | Objective > 35

Theme & Indicators	Metric
<p>Participation in High-Impact Practices Based on the areas measure by NSSE, and our curricula, the following metrics reflect our baseline data and reasonable shift from first year to senior year.</p>	<p>First-year student Participation</p> <ul style="list-style-type: none"> • At least one HIP: baseline 47% - objective >50% • Two or more: baseline 0% - objective 0% <p>HIPs as defined by the survey do not enter our first-year experience; however, other HIPs like collaborative projects and active learning are an integral part of our freshman experience. For purposes of this metric, we may track the “plan to do” vs “have not decided” as a point of interest but its value beyond that is limited for us.</p> <p>Senior Participation</p> <ul style="list-style-type: none"> • Two or more HIPs: baseline: 85% • Objective 90% <p>Senior baseline for participation in 1 HIP was 7%. The objective is to lower that percentage while increasing the percentage of two or more.</p>

b. Noel-Levitz Student Satisfaction Inventory (SSI)

Question Set	Metric
Academic Support (e.g. tutoring)	Satisfaction gap < 0.5
Instructional Quality	Satisfaction gap < 1.20

Fall 2021 - Pilot Phase, Results, and Plans for Spring 2022

We initiated the pilot phase in fall 2021 with two interrelated activities: partnership with LearnWell initiatives; and, hiring and training of peer learning strategists (PLSs).

Key Events

(See [Appendix 5](#) and [6](#) for related documents)

1. Faculty Orientation and formal launch of the pilot phase
2. Faculty Development session(s) delivered by Leonard Geddes, LearnWell Projects, including specific training for Mechanical Engineering and Mathematics.
3. Departmental work on learning outcomes (Intro to STEM and Mathematics examples)
4. Recruitment program for Peer Learning Strategists
5. Ongoing semester training for PLSs – via LearnWell Projects – Training was approximately every two weeks on Thursday evenings vis MS Teams led by Leonard Geddes and facilitated by Dr. Vollaro and Dr. Brilleslyper. All sessions recorded.
6. Mid-term Grade Analysis to identify areas of concern
7. PLS sessions held weekly from week 3 through the end of the term for students in Pre-calculus, Calculus 1, Calculus 2, and Intro to STEM

Student Learning Outcome Comparisons

Changes to student learning outcomes accompany the LearnWell Project’s focus on metacognitive skills. Thus, outcomes were retooled in the four key PLS-supported courses to reflect these metacognitive skills and provide a point of departure for faculty into thinking differently about how a student works the discipline and what the faculty member expects.

Old Course Learning Outcomes	New Course Learning Outcomes (eff. Fall 2021)
MAC 1147 Precalculus	
<ol style="list-style-type: none"> 1. Find zeros of polynomials 2. Apply properties of exponential and logarithmic functions to solve equations and applications 3. Solve systems of equations and inequalities using algebraic techniques, including matrices and determinants 4. Solve trigonometric equations and verify trigonometric identities 5. Solve triangles and real- world applications 	<ol style="list-style-type: none"> 1. Illustrate the different representations (verbal, symbolic, tabular, and graphical) of critical classes of STEM functions: linear, power, exponential, logarithmic, and trigonometric 2. Describe function behavior using precise mathematical language, to include domain, range, asymptotes, zeros, intercepts, and invertibility. 3. Recognize the connections between zeros of polynomials and the factorization of polynomials, to include using the fundamental theorem of algebra to completely classify the zero set of a polynomial. 4. Show proficiency in the algebra and function properties required to solve equations involving exponential and logarithmic functions. 5. Construct the solution of triangles, and model sinusoidal behavior by utilizing the right triangle and unit circle of the sine and cosine functions. 6. Use algebraic and graphical techniques to solve equations involving STEM functions, including linear systems of equations. <p><i>Additionally:</i></p>

	<ol style="list-style-type: none"> Effectively use calculators and visualization software to explore mathematical ideas and to assist in solving problems. Clearly communicate solutions to multi-step mathematics problems through careful, organized, and well-annotated work.
MAC 2311 Calculus 1	
<ol style="list-style-type: none"> Calculate the limits of functions algebraically. Calculate derivatives of polynomials, algebraic functions, trigonometric functions, inverse trigonometric functions, exponential functions, and logarithmic functions. Calculate derivatives using the chain rule. Compute the extrema of polynomials using the first and second derivative test. Evaluate definite integrals involving functions with known anti-derivatives via the Fundamental Theorem of Calculus. 	<ol style="list-style-type: none"> Illustrate fundamental understanding and modeling uses for critical classes of STEM functions: linear, power, exponential, logarithmic, sinusoidal, and sigmoidal. Interpret, use, and calculate derivatives of basic STEM functions and simple combinations of STEM functions. Interpret, use, and calculate anti-derivatives of basic STEM functions and simple combinations of STEM functions. Appreciate and demonstrate a computational and conceptual understanding of average and instantaneous rates of change. Develop, analyze, and interpret mathematical models in an interdisciplinary setting. <i>Additionally:</i> Demonstrate a computational and conceptual understanding of accumulation of a function. Use computers as appropriate to assist in analyzing and solving mathematical problems. Recognize data as fundamental to mathematical work. Clearly communicate solutions to multi-step mathematics problems through careful, organized, and well-annotated work.
MAC 2312 Calculus 2	
<ol style="list-style-type: none"> Calculate an integral using integration by parts Calculate an integral using trigonometric substitution. Calculate the volume of a solid of revolution Deduce whether a given series converges or diverges Calculate the Taylor series for a given differentiable function. 	<ol style="list-style-type: none"> Compute geometric quantities (such as area, volume, arc length) applications by applying definite integrals. Select the appropriate integration technique for basic STEM functions and simple combinations of STEM functions. Solve a variety of problems from physics, engineering, and mathematics by employing integral applications. Analyze STEM functions by generating their power series representation and examining its convergence and approximation properties. Interpret non-cartesian representations of curves using parametric equations and polar coordinates. <i>Additionally, students will:</i> Illustrate and solve mathematical problems by using computers. Clearly communicate solutions to multi-step mathematics problems through careful, organized, and well-annotated work.

Intro to STEM

Course Learning Outcome (Spring 2021 and earlier)	Course Learning Outcome (New Fall 2021 and forward)
a. Students will demonstrate use of professional format to solve technical problems	1. Students will <u>recognize</u> the type of problem and <u>identify</u> the mathematical method associated with that problem.
b. Students will analyze a breadth of STEM applications by identifying the various elements of a mathematical or statistical model and carrying out math calculations.	2. Students will <u>explain</u> all the parameters with corresponding units in the problem and <u>support</u> the choice of the governing equations.
c. Students will participate in peer evaluations to seek solutions to technical problems	3. Students will <u>solve</u> the problem with appropriate mathematical calculations and <u>illustrate</u> your results with graphs or diagrams.
d. Students will be able to implement design process and/or scientific method to STEM applications.	4. Students will be able to <u>differentiate</u> the nuances within group of similar problems based on application or mathematical method. Use this analysis to <u>compare and contrast</u> different problems presented in class or done for homework.
e. Students will be able to compose and present a professional communication.	5. Students will be able to <u>Evaluate</u> the physical significance for the problem and <u>decide</u> what degree program (or major at Poly) is associated with this type of STEM application.
f. Students will be able to implement the design process and/or scientific method for STEM applications	6. Students will be able to clearly <u>communicate</u> solutions to multi-step problems through careful, organized, and well-annotated work.

Student Attendance at PLS Sessions

Sessions were held weekly from about week 3 of the semester up just before finals week. Numbers below reflect the total number of students throughout the term who attended sessions at a given time.

Peer Learning Strategist (PLS) schedule for IDS 1380 Intro to STEM

Start Time	End Time	Monday	Tuesday	Wednesday	Thursday	Friday	Room
11:00	12:00		27		15		1044
1:00	2:00	40		16	4	25	1014
2:00	3:00		23				1068
3:30	4:30		18		15		1062
4:00	5:00	24		22			1060
4:00	5:00		17				1067
4:30	5:30		11		13		1062
5:00	6:00	23		11	21	30	1067
5:00	6:00		18		0		1017

Peer Learning Strategist (PLS) schedule for MAC 1147 Pre-Calculus

Start Time	End Time	Monday	Tuesday	Wednesday	Thursday	Friday	Room
10:00	11:00	2		0		16	1067
11:00	12:00	1		0		8	1060
12:00	1:00	12		13		28	1048
5:00	6:00	15	23	8	16		1045
6:00	7:00		2	6	2	8	

Peer Learning Strategist (PLS) schedule for MAC 2311 Calculus 1

Start Time	End Time	Monday	Tuesday	Wednesday	Thursday	Friday	Room
1:00	2:00	75		70		59	1065
3:00	4:00	65				23	1014
3:30	4:30		87		52		1049
4:00	5:00			42			1012
4:00	5:00	70	16		21	45	1003
4:30	5:30		32		36		1049
5:00	6:00	44	37		40	14	
6:00	7:00			7	21	4	1060

Peer Learning Strategist (PLS) schedule for MAC 2312 Calculus 2

Start Time	End Time	Monday	Tuesday	Wednesday	Thursday	Friday	Room
11:00	12:00	13		12		16	1068
12:00	1:00	1		0			1049
4:00	5:00	38		18			1068
4:00	5:00					3	1012
5:00	6:00	56			0	2	1068

Results and Analysis

As a first look metric, we examined DFW rates and concluded the following:

1. Overall some improvement in fall-to-fall rates from 2020 to 2021. The exception of Calc 1 likely illustrates some strong use of Covid-related policies that gave students more changes. The 0% change from Midterm-to-final for Calc 1 says that the problems were likely baked in already at the start of the term before the PLS program had much chance to take hold.
2. The change from midterm to final grades in Calculus 2 is notable, suggesting that the impact for students who were at least nominally further along in their degree (even if they were first semester freshman with transfer credit) responded better to the intervention of PLS sessions.
3. While the other changes from midterm-to-final move in the wrong direction, they are not especially surprising as there are other variables at play.

These results, in general, tell us that this process will take time to develop and as the faculty become more comfortable and the PLSs themselves more experienced, the program will have greater impact.

Fall 2021 Final DFW Rate							Fall 2020 Rate
Code	Crse #	Course Name	Cr	Total Grades	DFW Total (U grade)	DFW % (U grade)	DFW %
MAC	2311	Analytic Geometry and Calculus 1	4	259	104	40%	31%
MAC	2312	Analytic Geometry and Calculus 2	4	186	56	30%	55%
IDS	1380	Introduction to STEM	3	242	84	35%	47%
MAC	1147	Precalculus Algebra/Trigonometry	4	213	59	28%	47%
Fall 2021 Midterm DFW Rate							
Code	Crse #	Course Name	Cr	Total Grades	DFW Total	DFW %	
MAC	2311	Analytic Geometry and Calculus 1	4	259	103	40%	NA
MAC	2312	Analytic Geometry and Calculus 2	4	186	69	37%	NA
IDS	1380	Introduction to STEM	3	242	46	19%	NA
MAC	1147	Precalculus Algebra/Trigonometry	4	213	56	26%	NA

Additional Fall 2021 Feedback

Several small focus groups were held in December, prior to finals, with students who had attended PLS sessions to gather their opinions on their learning and provide feedback for what could work better.

The takeaways are interesting as one of the most notable was the initial statement that they didn't think they needed the sessions but that they were still helpful. As each group interview progressed, they spoke of how their approach to problems changed and how they worked with others using the language of the LearnWell Diagrams to help each other understand what was being asked in problems, tests, and homework. While they would not clearly admit that the sessions were helpful, they did state that they would continue to use them and that it was a valuable resource.

Other anecdotal takeaways as provided by Dr. Vollaro's Intro to STEM teaching group include the observation that students who engaged in the program demonstrated notably improvement in the quality of their work, but that engagement overall continued to be a factor to manage.

Also on the faculty side, we intend to work more closely with LearnWell Projects and faculty, especially in Math and how Chemistry to better acclimate faculty to teaching more with this framework in mind and as a tool in checks for understanding and other engagement activities in their classes.

Revisions for Spring 2022

Based on our fall experience, the data and feedback received, we have several changes in place to improve the PLS program and thus our overall Peer Engagement initiative.

The PLS Program

1. Creating a PLS Center so that sessions occur in one place instead of being spread all over the building.
2. Creating specialty hours where PLSs will be dedicated to certain subjects like Calculus, Chemistry, and so on.

3. Hiring 24 PLSs (fewer than fall) with 16 returning and 8 new. The center approach enables us to concentrate this effort with fewer students who are more highly qualified and invested in the program.
4. Ongoing training for the Peer Learning Strategists to be continued by LearnWell Projects, supported, collected, and archived by our Instructional Development Team for continuity.

Academic Departments

1. Several faculty training sessions held throughout the term by department to increase the overall knowledge base and application skills to teaching.
2. Develop online instructional development module.
3. Enhance use of metacognitive outcomes, rubrics, and adaptive lessons in core humanities and general education courses.

Academic Success Center

1. ACS will also undergo multiple training sessions to understand the language of the LearnWell Projects metacognitive toolkit and be able to have meaningful conversations with students about their learning and study habits. This reinforces the program's importance as it will come from the Success Coaches and show strong institution-wide push.
2. This will also form the foundation for "peer coaches" as a subsequent phase of FL PEER.

Student Affairs Consultations

1. Review of student leadership programs within Student Affairs, clubs, and other activities to identify places where the metacognitive toolkit can be integrated and extended to broader aspects of "learning" and campus life.

Assessment

- Develop student feedback mechanism (e.g. surveys) for both Peer Learning Strategists and students availing themselves of PLS opportunities;
- Develop faculty feedback mechanism focusing on how they incorporate the metacognitive toolkit in their classes and their own experiences with changes in student engagement;
- Engage faculty in ongoing development of metacognitive outcomes and methods to review their impact on the quality of student work via already established assessment practices.
- Track changes in performance of students using method described in [Duah, Croft, and Ingles \(2019\)](#).

III. Institutional Commitment

The University has a demonstrated and ongoing commitment to the quality enhancement plan as evidenced by budget expenditures-to-date, faculty, staff and student involvement in time and effort.

Initiation and Implementation

Fall 2021

1. Total amount paid for student labor (PLS): date: \$30,520 total
2. Total paid to LearnWell Projects: \$70,050
3. Total remaining to be paid on existing PO-2200304: \$7,750

Spring 2022

1. Student labor (PLSs) Projected Spring: \$35,000 (additional students and higher pay rate)
2. LearnWell Projects \$70,050
3. Ancillary assessments and resources: \$10,000
4. QEP Publicity: \$14,000
5. Website development: via existing Marketing Department
6. Training and Development Support: via existing Instructional Development Team

Est. Total for 2021-2022: \$237,370

Follow-through and Completion

All figures are approximate.

- Assessment Tools: \$10,000 annually
- Student Labor: PLS and tutors - \$80,000 annually
- Student Labor: Peer-Coaches (approximately 8) - \$26,000 annually
- Ancillary resources for training and development of faculty: \$10,000 annually
- Support resources for ongoing student (PLS) development and other academic support (approximately 1.5 FTE) - \$100,000 annually
- Infrastructure: \$75,000 (one time)

Estimated total annual expenditure: \$226,000 (excludes one-time infrastructure upgrades)

QEP Organizational Structure

FL Peer is an initiative governed by the Provost who holds direct budgetary authority over its components.

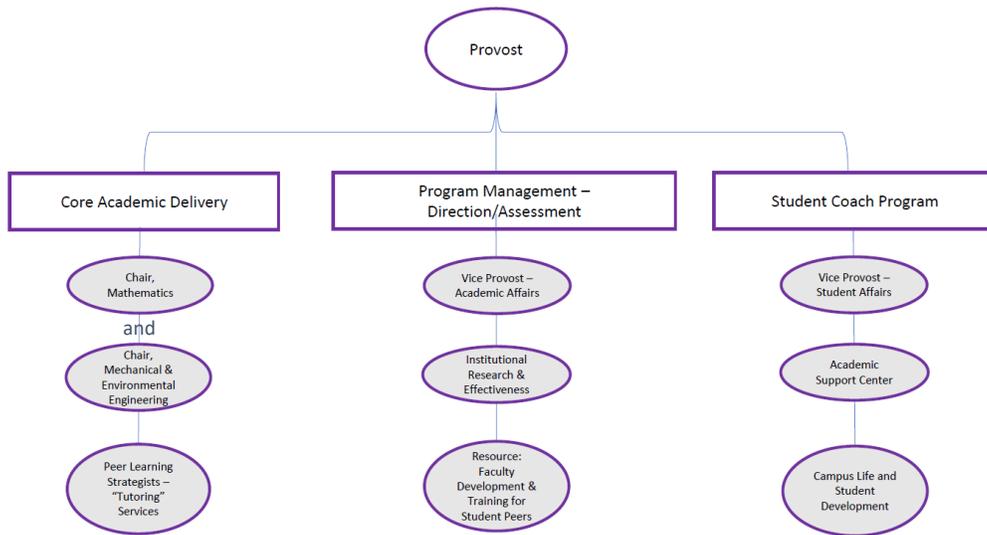
The Chairs of Applied Mathematics and of Mechanical and Environmental Engineering, having the largest stake in freshman course delivery manage the Peer Learning Strategist program, integrating metacognitive outcomes into curriculum, and quality controlling the training materials and processes for PLS, student tutors, and faculty development.

The Vice Provost of Academic Affairs and direct report units (Institutional Research and Effectiveness and Instructional Development) ensure ongoing plan management through timeline monitoring,

ongoing assessment and analysis, and resource development for student and faculty training through the Instructional Development.

The Vice Provost of Student Affairs oversees the peer coaching program and other complementary programs in Student Affairs associated with Wellness, the Residence Halls, and similar activities. The role here is twofold: 1. Develop “peer support coaches” to augment the functions of the Academic Success Center; and 2. Ensure continuity in message and method in the application of learning strategies and other key themes of the program.

FL PEER (QEP) Administrative Structure



QEP Administrative Structure

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Appendix 1. Review of Similar QEPs

The committee reviewed other SACSCOC member institutions' QEPs that focused on improving freshmen retention and graduation rates.

[Albany State University - "Guiding Persistence to Success \(#GPS\)"](#)

Albany State's QEP is designed to strengthen progression to completion rates through five strategies: progress reports, advising model, study tables, peer mentoring, and course redesign. Their QEP is similar to a combination of our first three topics. For course redesign, Albany State and several other universities in Georgia partnered with the Gardner Institute's *Gateways to Completion* program (2021) to redesign some of their gateway courses.

[Middle Tennessee State University - "MT Engage"](#)

The two main goals of MT Engage are to foster a culture of engaged learning and to improve student retention, progression, and graduation. Faculty integrated high-impact educational practices into their classroom teaching and supplemented student learning with relevant cocurricular activities. As such, this QEP is similar to our first and fourth QEP topics.

[Sam Houston State University - "Rise and Shine: Active Learning"](#)

"Because success in first-year courses is inextricably linked to retention to the second year, this QEP is particularly interested in improving student performance in these critical core courses." Sam Houston's QEP focused on increasing the use of active learning techniques to improve student success and learning, similar to our first QEP topic.

[University of North Georgia - "On Time & On Target"](#)

UNG shifted its advising culture to support "advising as teaching" strategies, expanded mandatory advising hours for students, and created a model to transition to faculty advisors. They developed an advising curriculum with mandatory advising sessions, expanded the number of advisors, created master faculty advisor positions, and developed interactive advising tools to plan and track student progress. This improved their scores in the National Survey of Student Engagement (NSSE) and full-time bachelor's students who participated had a 6.5% higher one-year retention rate (UNG, 2021; Leonard, 2021). Their QEP is similar to our third QEP topic.

[University of South Alabama - "TeamUSA"](#)

South Alabama utilized team-based learning (TBL) in gateway courses to increase student learning and success. "It was determined that the areas in greatest need of improvement were related to the development of critical thinking and collaboration student learning outcomes. It was also determined that the greatest need for acquisition of these competencies was in STEM and STEM-Related courses." This is similar to the first proposed QEP topic.

Appendix 2. Focus Groups

Script for Focus Group Sessions

Note to Steering Committee

Our role is not so much to gather feedback on these specific topics—there is nothing particularly special about them except that they are convenient placeholders for gathering up some of what our data points us toward without having to collect every potential topic under the sun that our campus community would blurt out after months and months of public forums, for which we do not have time for obvious reasons and other process reasons I don't need to go into here.

The goal, then, is to look at each of these as a bucket of parts, if you will. We'd like to ask questions that get our different audiences to dump out the parts and really identify what they are and the various qualities of these parts. At the end of these focus groups, we should be able to look over the field of parts and identify which ones look most like they belong together and have the greatest likelihood of producing strong impact on learning or success, buy-in, succeeding for 5-years in a sustainable way, and generally garner some enthusiasm from a healthy cross-section of campus. That's the *criteria*, more or less. As a committee, if we get two or so combinations of parts that equal up to working machines or something (or at least pleasant sculptures/hat racks) we can consider our work pretty successful. But, we want the focus groups to help us identify what is really inside these peanut shells, because these are just peanut shells. (Excuse me if you have allergies or don't like peanuts.)

Script, or Something Like It

In each focus, you will introduce the purpose of the meeting, which is something like this (adjust as you like):

Welcome, and thank you for being part of this focus group for Florida Poly's first Quality Enhancement Plan!

Florida Polytechnic University will submit its documents for reaffirmation of institutional accreditation in fall 2021. Included with this report, our institutional accreditor, SACSCOC requires that we submit a "Quality Enhancement Plan" or "QEP." A QEP is a focused program designed to address a gap between the University's expectations and student achievement in one or more areas of student learning or student success (such as retention or graduation rates). A QEP requires that the University first examine a range of institutional data that shows these gaps, develop a lead group that identifies potential areas of focus for the project and solicits a wide range of input from campus stakeholders regarding which learning and/or success metrics are most important, and which topic or variations on topics proposed would best advance those objectives. A QEP requires that the institution demonstrate a long-term commitment to the project of a minimum of five-years. In best case scenario, the project grows out of a range of existing programs, projects, or exercises that are diffusely managed, centralized as a QEP and prove successful enough to become systemic within the institution.

A review of our institutional data produced four somewhat "generic groups" that was will use to focus our discussion today. These groups are as follows:

- Gateway Courses

- Freshman Year Foundations Sequence
- Coaching & Academic Support
- Student Teams

We will begin with a brief description of each of the four areas, which we will also post for you so you can see them.

Then, we will ask you a series of question to stimulate your thinking and call on your experience to assist us as we think about how best to shape this project and put it into action.

We will strive take approximately 15 minutes for each section with a general, overall question at the end that encompasses all four groups.

Any questions before we begin?

Gateways

Florida Poly’s students are required to pass several gateway courses during their first two years before beginning courses for their chosen major. In a national study of students who leave STEM majors, a majority of students mentioned factors relating to their experience in gateway courses (Seymour & Hunter, 2019). Bringing evidence-based approaches to designing, teaching, supporting, and coordinating gateway courses can have considerable and positive impacts on student success and retention.

Questions:

1. How would you define a gateway course (in your plan of study/degree program)? (Aud: students; faculty) / Identify a course that you would think of as a gateway course?
2. Prior to us, just now, raising the idea of a “gateway” course, have you ever thought of it that way? (Aud: students)—
 - a. Given that...as you recall, do you notice any significant difference in the expectations between the courses you’ve identified and the ones that came prior?
 - b. Can you identify any differences in your experience as to how these classes were taught—apart from modality.
3. Do you, as an instructor or department, have a different philosophy toward gateway courses than other upper or lower division courses? (Aud: faculty)
4. What are the greatest barriers to learning you experience as an instructor in gateway courses? (Aud: faculty)
5. What core skills do you see as essential—gateway—to advanced study in this degree (Aud: industry)
6. What do you think would best help students acquire the core skills at the gateway-point in the major? (Aud: anyone but thinking somewhat more generally toward external/industry).

Foundations

The University looks to more strongly establish the first-year foundations sequence as a unique institutional marker that distinguishes the Florida Poly experience and sets up students for academic, professional, and student life success.

The Foundations Sequence courses include:

- SLS 1106 - Academic & Professional Skills
- IDS 1380 – Introduction to STEM
- EGN 1007C – Concepts and Methods for Engineering and Computer Science

- COP 2271C – Introduction to Computation and Programming).

Course content in the three disciplinary courses (STEM, Programming, Concepts & Methods) has been overhauled to more strongly link to, support, and augment curricula in the first year, the majors, and for professional foundations; however, the foundations sequence still has areas for improvement: coherent, comprehensive institutional buy-in that ensures consistency and continuity of delivery, support, and strong links to discipline and career. Additionally, the sequence needs to better bridge the development of academic habits and campus life engagement. (All questions: all audiences)

1. What do you see as the goals of a common first-year experience?
2. What types of experiences—knowledge, skills, interactions, and so on—do you see as critical to the Florida Poly first-year experience?
3. How can the foundations sequence be made more central to the first-year experience and to the Florida Poly experience?
4. How can APS and the other courses in the sequence build a bridge between academics and campus life?
 - a. What would that bridge look like?
 - b. How can it build a bridge to professional life? - working with industry as part of research or internship
5. In what ways should the foundations sequence be supplemented via learning support? Social support? Or other? How can this be coordinated?

Coaching & Academic Support

One of the most significant metrics for any university is the graduation rate for its students. Evidence shows that one-on-one guidance, early identification of issues, academic advisement, and support can promote college completion. This topic area broadly encompasses academic support including academic and skills coaching, registration advising, internship and career support, and the range of different student learning and academic management support systems, tools, and resources that would be needed to provide a robust backdrop for all Florida Poly students.

1. Describe what a University should provide in terms of academic support for its students? (Aud: all)
2. What has been some of the resources you've relied on the most? Least? (Aud: students)
 - a. What resources have not been provided that you think would have been helpful?
3. What areas do you see departments having the strongest impact in when it comes to academic support? (Aud: faculty-departments)
4. What is one thing that you've experienced in this area that has made the biggest positive difference for you? (Aud: students)
5. What do you see as having the biggest potential in this area to improve student learning or student success—retention/completion rates?

Student Teams

This program puts emphasis on expanding Florida Poly's current extra-curricular opportunities in the form of student Teams. This is not "athletics" in the traditional sense or even any particular sense at all, but clubs that generate more selective, competitive-level engagement groups on campus. Examples of Teams underway or in development include: Phoenix Scatter Band, Esports, Women's Club Soccer, Men's Club Lacrosse, and Robotics. Other examples include a formal entrepreneurship competition club, engineering "big build" teams, or other disciplinary-focused competitive groups. Creating teams would significantly enhance campus living, alleviate stress, promote teamwork and healthy lifestyles and bring greater connection to peers and school pride. Such activities have proven to increase retention and

student satisfaction, which is especially important within STEM disciplines that are highly demanding and intense. The development of an electric, vibrant campus culture strengthens the support fabric and kinetic energy that drives creativity.

1. Are there any teams that you wish existed at the University to enhance campus living, but currently do not exist?
2. What would be the most effective way to engage more students into student teams?

Concluding Questions—Ask in All Sessions

1. Of the ideas that have been raised, which do you see as the **most likely** to have a positive impact on student learning or student success?
2. Least likely?



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QEP

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Feb. 12-Deadline to complete QEP Public Input Form

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As part of our institutional reaccreditation, we're embarking on a five-year program to improve the student educational experience. We'd like your input on what you think will have the biggest impact on future Florida Poly students. Please take 10 minutes to visit this webpage and complete the QEP Public Input Form. Please do it as soon as [...]

Jan. 13-Students invited to open forum

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We value and request your input! Students are invited to attend an open forum Wednesday, Jan. 13, at 5 p.m. to discuss plans for our Quality Enhancement Project (QEP). The QEP is a focused program designed to improve student achievement that may come from expanding, combining, or reformulating existing programs, or designing something new. The [...]

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SACSCOC input needed from ALL

(<https://weeklyphoenix.floridapoly.edu/notice/sacscoc-input-needed-from-all/>)

The accreditation calendar is rolling around to us again and SACSCOC will be returning to campus in Spring 2022. That means we have reports due in 2021. Among them is a Quality Enhancement Plan, which is a special five-year plan designed to improve student achievement. To decide upon the plan's focus and development, we need [...]

Important input needed from ALL

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Student Satisfaction Survey is back next week!

(<https://weeklyphoenix.floridapoly.edu/notice/just-like-a-phoenix-rising-the-student-satisfaction-survey-is-back-next-week/>)

In January, we launched the Student Satisfaction Survey, but due to scheduling needs related to the QEP survey and focus groups, it was suspended until a later date. The time has now come to restart the survey! You will receive an email on Monday, Feb. 15, with a link to the survey. If you have [...]

Feb. 12-Deadline to complete QEP Public Input Form

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Jan. 13-Students invited to open forum

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SACSCOC input needed from ALL

(<https://weeklyphoenix.floridapoly.edu/notice/sacscoc-input-needed-from-all/>)

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Appendix 3. Additional Data

Student Satisfaction Inventory

SSI Question	Topic 1 – Gateways	Topic 2 – Foundations	Topic 3 – Coaching, Academic Support	Topic 4 – Student Teams	Importance to the students	Satisfaction Score	Performance Gap
Students are made to feel welcome here.			√	√	6.15	5.56	0.59
The quality of instruction I receive in most of my class is excellent.	√	√	√		6.57	4.91	1.66
The content of the courses within my major is valuable.					6.65	5.14	1.51
There are sufficient courses within my program of study available each term.	√	√	√		6.42	4.75	1.67
My academic advisor is knowledgeable about requirements in my major.			√		6.31	5.54	0.77
I have been able to connect academic learning with real world experiences.	√	√	√		6.26	5.09	1.17
I am able to register for classes I need with few conflicts.		√	√		6.45	4.82	1.63
Career Development provides resources to support internships and job searches.			√		6.23	5.40	0.83
I receive the help I need to apply my academic major to my career goals.			√		6.21	5.08	1.13
Faculty are usually available for students outside of class.			√		6.20	5.93	0.27
Students are free to express their ideas on this campus.				√	6.18	5.71	0.47
Academic Success Coaches provide information and support that I need.			√		6.16	5.44	0.72
Students are made to feel welcome here.				√	6.15	5.56	0.59
I seldom get the “run-around” when seeking information on this campus.				√	6.12	4.61	1.51
Counseling services are available if I need them.			√		6.07	5.12	0.95
There are adequate services to help me decide upon a career.			√	√	6.10	4.96	1.14
My academic advisor is available when I need help.			√		6.09	5.47	0.62
Tutoring services are readily available.			√		6.02	5.40	0.62
Student activity fees are put to good use.				√	5.98	4.72	1.26
I have gained essential soft skills while at FL Poly.				√	5.96	5.18	0.78

SSI Question	Topic 1 – Gateways	Topic 2 – Foundations	Topic 3 – Coaching, Academic Support	Topic 4 – Student Teams	Importance to the students	Satisfaction Score	Performance Gap
Mentors are available to guide my life and career goals.			√		5.90	4.96	0.94
My academic advisor helps me set goals to work toward.			√		5.71	4.98	0.73
I receive ongoing feedback about progress toward my academic goals.			√		5.69	4.54	1.15
Student Clubs and organizations represent the student body.				√	5.66	5.32	0.34
Resident hall staff are concerned about me as an individual.			√		5.51	5.16	0.35
Faculty use a variety of technology and media in the classroom.			√		5.41	5.38	0.03
Use of the Student Development Center is a part of my regular routine.				√	5.12	5.00	0.12
Faculty provide timely feedback about my academic progress.			√		6.24	4.91	1.33
Registration processes and procedures are convenient.			√		6.23	4.91	1.33
Financial aid counseling is available when I need it.			√		6.07	5.71	0.36
This institution helps me identify resources to finance my education.			√		5.98	4.89	1.09

Steering Committee’s Literature Review of Four Studied Focus Areas

As part of the development process, the QEP Steering Committee conducted a brief literature review on each of the four proposed topics. The purpose of this literature review was to gain direction on strategies that connect to these broad topic areas and perhaps interlink them in a new way. Generally, the Committee as directed does not look to any one of these topics as the solution, but as a signpost for further investigation where common elements across the groups may rise up to the QEP topic level. The purpose of this review, then, is exploratory and not specifically a literature review in support of the defined QEP, but rather one to help reach a definition.

Topic 1 – Gateways

Gateway courses are introductory, foundational courses that students normally take in the first or second years of college and have historically resulted in high rates of Ds, Fs, and Withdrawals (DFW), especially for low-income, first-generation, and historically underrepresented students (Gardner Institute, 2021; Seymour & Hunter, 2019; Koch, 2019). Some refer to these as “weed-out” courses, and examples include calculus, physics, chemistry, and introductory computer science. DFW rates in Florida Poly’s most common gateway courses can run as high as 45-55%. Student struggles in these gateway courses can delay graduation or prevent students from graduating, with well over half of students leaving Florida Poly without getting a degree.

Talking about Leaving is a multi-decade national project that analyzes why students leave STEM majors, identifying several factors that affect STEM persistence. They found that 90% of STEM majors who leave and 74% of STEM majors who stay mention teaching as their top concern (Seymour & Hunter, 2019, p. 8). The STEM courses which have the greatest impact on student success and persistence in terms of sheer number of students affected are gateway courses.

The teaching methods used in gateway courses have a significant effect on student success, learning, and equity. Researchers have identified several evidence-based teaching practices that improve student success and reduce equity gaps in STEM courses (Kober, 2015). These strategies generally involve active and collaborative learning (Chi & Wylie, 2014; Driessen et al., 2020), which is one of 11 established high-impact practices for improving student success and learning (AAC&U, 2021) that are included in 99% of QEPs (SACSCOC, 2018). Active learning reduces student failure rates by 55% on average (Freeman et al., 2014) and reduces equity gaps for underrepresented students (Theobald et al., 2020).

Here are some examples of how STEM gateway courses have been transformed to improve student success:

- At Florida Poly, Harish Chintakunta and others implemented a strategy known as Peer-Led Team Learning (PLTL; Gosser, 2020) and improved student passing rates in the circuits course by 18.6% (Chintakunta et al., 2020). PLTL involves training student peers who formerly completed a course. These peers facilitate weekly student group workshop sessions in the courses.
- At Clemson, student passing rates in precalculus were improved from 45% to 55% by adopting active learning strategies and climbed to 70% after adopting adaptive learning technology (McGraw-Hill, 2021).
- Through successive yearly improvements to the large enrollment biology course at U. Washington, Scott Freeman and others gradually reduced the DFW rate to single digits, without sacrificing rigor (Freeman, Haak, & Wenderoth, 2011). They employed strategies such as flipping the class and peer instruction. They refer to their teaching technique as “High Structure Format” teaching (Freeman, 2021).
- The failure rate of an introductory computer science course at UC San Diego was cut in half by adopting the peer instruction teaching technique (Porter, Bailey-Lee, & Simon, 2013).
- Hundreds of universities and even a few state university systems (including Georgia and Wisconsin) have partnered with the Gardner Institute’s *Gateways to Completion* program (2021) to help guide and assess the redesign of key gateway courses to improve student success and reduce equity gaps.

Topic 2 – Foundations

The University’s Foundations Sequence consists of the following courses: SLS 1106 - Academic & Professional Skills, IDS 1380 – Introduction to STEM, EGN 1007C – Concepts and Methods for Engineering and Computer Science, COP 2271C – Introduction to Computation and Programming. These courses form a “general foundation” within the nearly common freshman year. Other courses in the CFY are disciplinary and foundational, such as Calculus, Chemistry, and Physics.

First-year college success courses such as Academic and Professional Skills (SLS 1106) can have a tremendous boost to student retention, GPA, and graduation rates, depending on what and how they are taught. These types of courses are taught at over 90% of American colleges and universities and are meant to help acclimate new students to the first year of college and prepare them for challenges they might face (Perzadian & Crede, 2016). Barefoot (1992) identified four categories for FYS which are still

prevalent today: (1) extended orientation seminars, (2) academic seminars, (3) discipline linked seminars, and (4) basic study skill seminars. Some institutions might focus on one of these areas or adopt a model that incorporates two or more depending on their students. Regardless of the model used for curriculum, the two most common course objectives for first-year seminars (FYS) are improving students' academic skills and having them form a connection to the university (Padgett & Keup, 2011). A 2016 study by Permazadian and Crede (2016) looked at different variables of first-year seminars such as the category of the course, the person assigned to teach, who is required to take the course, and whether it was paired or linked to other courses in a learning community environment. When it comes to increasing the first-year retention rate they found that the most effective courses were:

(a) an extended orientation seminar rather than an academic or hybrid seminar, (b) taught by faculty or administrative staff rather than taught in part or in whole by undergraduate or graduate students, (c) targeted at all incoming first-year students rather than just academically underprepared students, and (d) a stand-alone course rather than linked to a learning community. (pp.306-307)

Other studies which have focused on specific universities have also shown positive results for increasing retention rates. Freshmen at a Texas university who took a 3-credit learning-to-learn course had a 74% first-year retention rate, compared to 56% for students who took no course and 47% for students who took an extended orientation course instead (Heiman, 2010). In addition to improved retention and GPA, Ohio State freshmen with academic difficulty who took a course on Learning and Motivation Strategies were 50% more likely to graduate than students who did not (Tuckman, 2009). The University of North Colorado's University 101 course has also shown significant improvements to GPA and graduation rates, with the largest gains for first-generation students (UNCO, 2021). These studies have also found that a 3-credit college success course had a large enough positive impact to eliminate equity gaps, not a 1 or 2 credit course (Vaughan, Pergantis, & Moore, 2019). While first-year seminar courses help increase student success and retention, it is also clear that the design of the course must fit the students it serves to have the highest success rates.

In Introduction to Computation (COP 2271C), as mentioned in the above gateway course literature review, the teaching strategies utilized can have a large impact on student success. The failure rate of an introductory computer science course at UC San Diego was cut in half by adopting the peer instruction teaching technique, for example (Porter, Bailey-Lee, & Simon, 2013). Another struggle with teaching introductory programming is that students come in with widely different levels of previous experience and preparation. One strategy that several universities use to address this is to offer a "CS0" course for students with little or no previous programming experience to take before taking a standard CS1 course (Marling & Juedes, 2016).

There are gaps in the research on teaching research methods courses such as Concepts and Methods (EGN 1007C). Most of the research involves characteristics of students taking these courses and teaching methods and techniques used. There is no evidence for the impact of a research methods course on student retention or success (Earley, 2014). Utilizing active and collaborative learning strategies and increasing the hours and rigor of this course may improve student success and learning, but the DFW rate of this course is already very low.

The Introduction to STEM (IDS 1380) course was redesigned in fall 2020 to implement an engineering mathematics course originally designed at Wright State University and now taught at dozens of

engineering colleges around the country (WSU, 2021). At Wright State, freshmen engineering students who were not yet ready for Calculus took this engineering math course alongside Precalculus to increase student motivation by showing them the relevance of the math they were learning. The engineering math course involved hands-on, contextualized activities that showed the students how they would apply the math concepts they were learning in different engineering fields. Afterward, 89% of the students who took the engineering math course passed Calculus, compared to 60% who did not. These students' graduation rates were also effectively doubled and no longer related to incoming math preparation scores.

Topic 3 – Coaching & Academic Support

In the University's third year of operations, it launched the Academic Success Center with Academic Success Coaches to provide academic advising but also broader support on the range of issues students face and to facilitate their growth through the curriculum. During this same time period, the University has made an aggressive to advance its student success metrics. Because of this, many initiatives fall into the ASC's lap with programs such as early alert, which utilizes the learning management system so faculty can easily alert the ASC and other campus Resource Centers to a student who might be struggling, having had a direct impact on the University's ability to deliver services to students in a timely, effective way.

One of the most significant metrics for any university is the graduation rate for its students. Key to increasing the graduation rate of students is keeping them enrolled and progressing through their program of study. We know that student success is greatly impacted by student interactions with faculty and staff (Nutt, 2003). And that additionally, academic advising and student coaching have been shown to positively impact student retention and persistence (Drake, 2011; Leonard, 2021).

The Academic Success Center has worked diligently to track at-risk students and has through one program reduced the number of students who were entering fall term below a 2.0 by 65%. Despite these positive indicators, without added financial support, our ability to sustain this level of continuous improvement is at risk, particularly, as we grow enrollment. Spending on student support is linked to increased graduation rates and evidence shows that one-on-one guidance, academic intrusive advisement, and support can promote college completion. In fact, intrusive advising has been associated with increased retention rates of STEM majors who enter college underprepared (Rodgers et al., 2014). Unfortunately, students at public colleges and universities tend to meet with academic advisors less often than their peers at private schools which was directly linked to private institutions spending more money on student services than public schools (Fosnacht et al., 2017). With increased spending, the University will be able to track and meet with more student and more often, allowing us to better identify problems early-on and reduce the rate at which some students fall behind in completing their programs in an acceptable time period or not at all.

When a student first enters college, they are more open to hearing and taking advice than they are at any other point in their collegiate career (Black, 2007). We can capitalize on this if we can expand our services, which will allow us to be able to better set students up for success before they even start to struggle. Additionally, national research and reports demonstrate that students are lost along the educational STEM path; these reports emphasize the students' crucial first term on campus and the summer after their first year of study as crucial periods for persistence (National Academy of Sciences, 2010).

Universities are starting to use technologies to enhance advising, including messaging apps, early alert indicators, predictive analytics tools, and the like (Kalamkarian, Karp, & Ganga, 2018). Tracking student progression and having support programs in place for students who falter are extremely important. Other academic support services benefit student success such as tutoring. Student visits to tutoring centers have been shown to increase grades in Calculus, for example (Rickard & Mills, 2017). If we can identify problems early-on we can reduce the rate at which some students fall behind in completing their programs in an acceptable time period or not at all.

Case Studies:

- Georgia State University invested in increasing its number of advisors as well as using analytics tools and tools such as messaging and nudging students' reminders or early alerts. They increased their graduation rate by more than 20% in a decade (CCSE, 2018).
- The University of South Carolina utilized an early alert referral system that increased student final exam scores by 6.5 to 7.5% (Gordanier, Hauk, & Sankaran, 2018; 2020).
- Using predictive analytics and other tools and techniques, USF has increased their retention and graduation rate more in the last 10 years than any other public university in the country (Dosal, 2019; Miller & Irvin, 2019).

Topic 4 – Student Teams

Student involvement in student clubs, organizations, and other extra-curricular and co-curricular campus activities on average has a positive impact on student satisfaction (Pascarella & Terenzini, 2005; Montelongo, 2002; Reed & de Silva, 2007) and psychosocial development (Foubert & Urbanski, 2006; Vetter et al., 2019). The quality of student involvement is more predictive of student thriving in college than the quantity. In fact, participating in too many activities can have a negative impact on student success (Pascarella & Terenzini, 2005).

Regarding the academic focus of QEP proposals on student learning and student success, student involvement in campus activities may have a small positive impact on their critical thinking skills, although this is correlational (Gellin, 2003). On average, there is no correlation between campus involvement and student academic success outcomes such as retention and graduation rate. Certain types of student activities, such as sports and fraternities, have been shown in some studies to have a negative relation to student success (Pascarella & Terenzini, 2005). A recent book (*The Cost of Inclusion*, Silver, 2020) also found that student extra-curricular activities may unintentionally exacerbate equity gaps, benefitting white male students the most (summarized in an article by Jaschik, 2020). The author recommends intentionally employing inclusive strategies for counteracting these inequalities.

Key Takeaway

As stated at the outset, the purpose of this literature review is to broadly conduct a survey of activities, discussions, solutions that lie more or less within each category. As one looks over these results a clear and common denominator that runs through them is the intentional use of student peers in facilitating learning and student success. A focus on peer-led support ties together instructional development for faculty and can also be linked to the activities and programs of the Academic Success Center. Thus, a network of student-peer leader, first-year instructor, and ASC coach ought to be more formally developed to address learning support, student coaching, and broadly campus acclimation.

Subsequent literature reviews will need to focus on the use of student mentors or peer leaders, training and support for these roles, and methods of engaging faculty and coaches into a peer-led support program.

Appendix 4. Steering Committee Memo to Leadership Team



TO: President Avent and the SACSCOC Reaffirmation Leadership Team
FR: Dr. Tom Dvorske, Vice Provost of Academic Affairs and SACSCOC Liaison
RE: Analysis and Proposed Topic for Quality Enhancement Plan: FL PEERs
DT: March 14, 2021

The QEP Development and Leadership Teams have conducted analysis of internal data, compiled and analyzed input from a broad range of campus stakeholders, and surveyed relevant literature and other institutional QEPs to reach a consensus as to topic recommendation for Florida Poly's first Quality Enhancement Plan. This memo provides that recommendation and summarizes the Steering Committee's reasoning. The appendix to this memo includes a deeper dive into the analysis and material gathered over the development process of these last 16 months.

The QEP Steering Committee recommends that the University adopt a QEP that focuses on growing and integrating student-led learning and academic support functions in an intentional, collaborative effort with first-year faculty and the Academic Success Center. The objective of this program is to improve the University's Academic Progress Rate, stabilize it, and to improve satisfaction with learning support, coaching, and instruction overall as evidenced by student feedback surveys. This combination of direct and indirect measures (and others as necessary to gauge effectiveness) should strongly support improvement in several areas already defined as operationally vital: creating an engaging student (user) experience, improving instruction, improving academic support (including tutoring and advising), and that most elusive of objectives: growing a campus student culture rich in tradition and able to appropriately mentor incoming students to the academic habits and behaviors needed to succeed at Florida Poly.

Proposed QEP: FL PEERs

FL PEER stands for Florida Poly Engaged Education PRoject. Through a carefully constructed peer-led academic and student support initiative, students will find encouragement and methods to successfully perform in their courses, navigate their curriculum to stay on track, and find their place among their fellow Phoenixes developing a strong, lasting connection to the University. While the goals and aspirations of the program are broad and complex, the chief measurable objective that the program is intended to improve is the student achievement metric of the University's Academic Progress Rate (1st to 2nd year retention with a 2.0 GPA or greater).

Broadly, the program includes three different types or roles of student support worker and one program around faculty development in context of the first year.

1. **Peer Mentors (Orientation Leaders):** hired in the spring semester, trained through the summer, and positioned with Foundations sequence courses throughout the academic year. Peer mentors collaborate closely with the course instructor and an Academic Success Center coach to facilitate improved academic habits in foundations courses with regular, required and organized

- “study-group labs”, connect students to degree programs and registration-related support with the assistance of an ASC coach, and foster connections to student/campus life.
2. **Supplemental Instructors:** these students are identified prior to the academic year, trained, and integrated in a key common freshman year courses (pre-calc, calculus, physics, chemistry) where, like Peer Mentors, they organize and lead mandatory student study sessions outside of class that address course content, study habits, and other essential learning strategies critical to success at Florida Poly. Initially, this program will focus primary on freshman year, but may grow over time to include critical sophomore year courses.
 3. **Student Care Partners:** selected, trained students who work closely with the University’s Wellness CARE team and Student Ombudsman Offices to serve as an informal, confidential resources areas or issues of concern.
 4. **Faculty Community of Practice:** Faculty are a critical component of this project. A faculty cohort program comprised of faculty teaching in the freshman year will be developed. Faculty participants work to integrate a set of Florida Poly “values” and behaviors that are critical to student success in freshman classes. Faculty participants will receive recognition for their training, as well as some fraction of FARE-form (workload) credit to collaborate, develop, and deliver on these critical impact areas.

Assessment and Metrics

By creating a strong peer support program, the University seeks to improve rates around the following four areas:

- General Academic Progress Rate (APR—1st to second year retention at a 2.0 or better).
- The APR metric applied specifically to Pell recipients.
- Overall student satisfaction with academic support (as measured by internal surveys and Noel-Levitz SSI).
- Improved academic and campus engagement (as measured by the NSSE—the National Survey of Student Engagement).

At the formative level, several indicators will be needed to monitor the health of the program and for continuous improvement. Examples include the following:

- Percentage of FTIC students successfully completing (with a C grade or higher) Intro to STEM, Calculus 1 (or Pre-calculus), and a natural science/or computation and programming in the fall term.
- Student engagement/attendance in class and with peer groups.
- Student satisfaction with the program’s services and specific components of it.
- Faculty feedback on the quality of student engagement.
- Midterm and final grades and successful ongoing registration.
- Others to be determined.

The peer-led program should also include consideration as to how it supports faculty and coaches during the freshman year. To facilitate this type of program, effort must be put into identifying and training student peer leaders, designing appropriate roles and responsibilities around them, and creating an effective network and functional relationship between peer-leaders, first-year instructors, and academic success coaches.

As we move to the next phase of this process, an implementation team will be tasked with working out the details of the program including identifying valid formative assessments to track the program’s efforts.

Next Steps

The Leadership Team’s endorsement of this topic initiates the next step in the process, which is to identify an implementation team. The Implementation Team should consist of a leader tasked with the responsibility and authority to direct the detailed development of the QEP plan and report proposal needed for the Commission on Colleges.

The QEP leader will also work with colleagues to maintain the project plan and see it through over the five-year phase of the program (2023 – 2028*). This team should be appointed and managed out of Academic Affairs under the direction of the Provost and consist of qualified faculty and staff to design and develop a program that meets all accreditation expectations and drives our student achievement objective.

The implementation team must work diligently to develop this plan and complete a draft by August 2021.

Appendix 5. Documents Related to the Fall 2021 Pilot



August 10, 2021

TO: All Faculty
FR: Tom Dvorske, Vice Provost of Academic Affairs, SACSCOC Liaison
RE: QEP Preliminary PHASE 1 Plan

Florida Poly Peer is an educational project that fosters a climate and culture of student engagement in learning through specialized instructional approaches reinforced by peer learning strategists. The focus of the program is on freshman students and freshman year courses with the objective to reduce course DFW rates and improve the University's Academic Progress Rate (retention with a 2.0 or better).

Fall 2021 is the initial, pre-project phase of this plan where there are two objectives:

- Educate and enfranchise first-year faculty and related stakeholders in implementing metacognitive outcomes, lessons, and assessment components into all first-year courses.
- Identify, train, and connect Peer Learning Strategists with appropriate courses (Chairs, Course Coordinators) to function as peer group leaders for instructional and learning support.

Fall term anticipated outcomes include:

- 80% of Fall term freshman courses will demonstrate a reduction in DFW rates over previous AY by 2.5% or better.
- Assessment of faculty will show >70% agree that these new methods facilitated better student learning outcome attainment.
- Assessment of faculty will show >70% agree that Peer Learning Strategists were an important cornerstone to improving student learning.
- Seventy percent of PLSs will agree that through their role (training and delivery), they have become stronger learners and leaders.

Definitions:

1. Learning Support – in this context, refers to support and programming designed to facilitate students as learners, cultivating metacognitive learning skills, and other endeavors that facilitate students as independent learners.
2. Instructional Support – in this context, refers to support that underscore course lessons, such as problem-solving sessions.
3. Peer Learning Strategist – an academic and course support student leader who facilitates academic success through integration of what to learn with how to learn.
4. Student Educational Assistant – an instructor support role that is primarily their to off-load grading burden.

Faculty Preparation - Details

The University is partnering with The Learn Well Projects to infuse approaches to learning and subject matter that reduce "pseudo-work" and replace it with engaged, long-term independent learning. Mr. Leonard Geddes will work with University faculty, staff and students through fall 2021. With faculty in particular, he will work on the following:

- Constructing Metacognitive Learning Outcomes (MLOs)

- Developing Metacognitive Action Plans (MAPS)
- Gauging classroom interactions
- Refining tactics and tools for better exams and assessments
- Improving ways of engaging students to take more ownership of their learning.

The first meeting of faculty and Mr. Geddes will be the week of August 16th where workshops will focus on integrating metacognitive elements into learning outcomes, developing actions plans and assessments that support these outcomes, and most importantly, the relationship between metacognitive learning and improved student learning.

Peer Learning Assistants - Details

Position Description and Responsibilities. The Peer Learning Assistant (PLS) is an undergraduate student, sophomore or above, who meets the minimum qualifications for employment on campus, has demonstrated leadership or related skills that would make them a good candidate for organizing student study groups and learning strategy sessions and are willing to work closely with course faculty to learn and transmit critical course concepts to their fellow students.

PLSs teach students how to integrate course content with reasoning and study skills to increase their performance. The PLS approach is an active approach to learning that supports students toward academic success by integrating “what to learn” with “how to learn.” The job of the PLS consists of regularly scheduled, voluntary sessions outside of class, for which they are trained to facilitate and use collaborative activities to ensure peer-to-peer interaction in small groups.

As a PLS, students are expected to:

1. Meet regularly (weekly) with assigned course coordinator or instructor(s). The purpose of these meetings is to be aware of the week’s coming expectations for the course, collaborate on effective learning group strategies, lesson, and skills that support student success in the course.
2. Meet regularly (bi-weekly) with the PLS coordinator to facilitate completion of tasks, enrichment for improving oneself as a PLS, and troubleshooting areas of difficulty.
3. PLSs are expected to serve as a feedback loop to faculty about particular difficulties students are having in the course.
4. Develop (in collaboration with the PLS coordinator and course faculty) appropriate study-group format, content, and keep track of what was covered, who attended, and what areas require follow-up.
5. PLSs will be included in appropriate Canvas sections for the courses they support.

PLS Study Sessions

PLS study sessions are informal seminars where students review notes, discuss readings, develop organizational tools, and prepare for exams. Students who attend PLS sessions regularly throughout the semester earn on average (based on research) a half to a full letter grade higher than those who attend no sessions.

PLS sessions give students these opportunities:

- Improve understanding of important concepts
- Compare notes
- Get to know classmates
- Develop study and learning strategies
- Test yourself before the professor does

2

PLS sessions start the first or second week of class. Each PLS typically sets up two or more review sessions per week. PLS sessions are free. Students are encouraged to participate in as many as they’d like; however, statistics show that the more often students attend, the better their grades.

CC.

Dr. Terry Parker, Provost and Executive Vice President of Academic Affairs

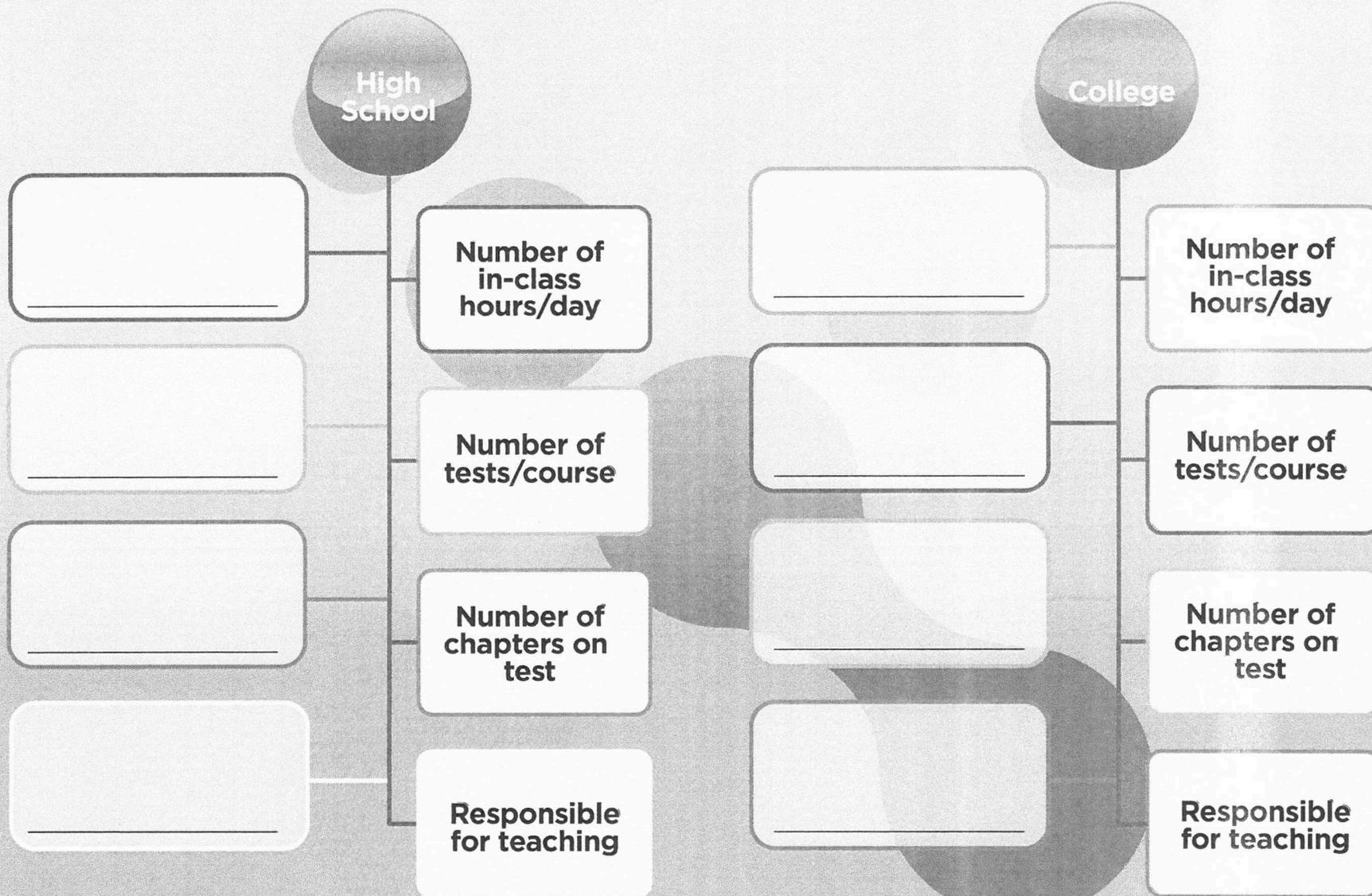
Dr. Kathryn Miller, Vice Provost of Student Affairs

PRECOLLEGE LEARNING ENVIRONMENT VS. COLLEGE LEARNING ENVIRONMENT



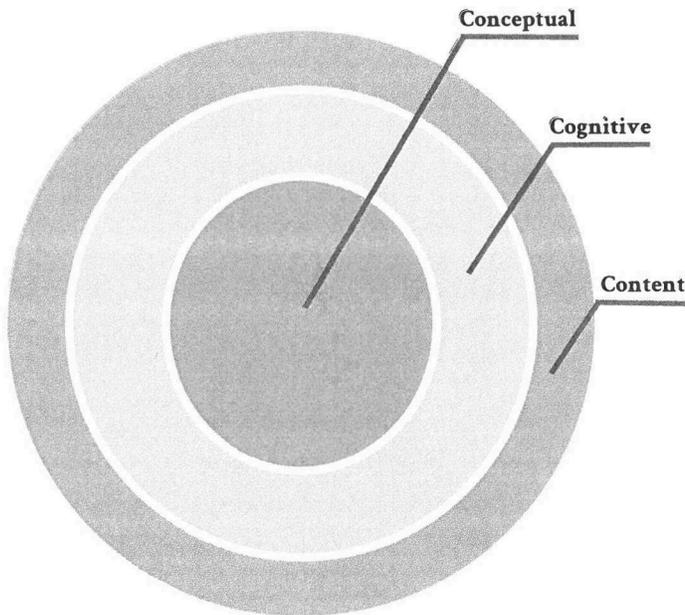
Students view the the collegiate learning environment in similar ways that they viewed high school. Therefore, their approach to learning in college is parallel to their high school approach. This activity increases students' awareness of some of the very important structural differences between the two environments.

Instructions: Have students write the answers to the statements located on the right of each list in the corresponding box on the left. then discuss the distinctions between the two environments, particularly their impact on time apportionment, test preparation, classroom interaction and independent learning.



The Three Layers of Academic Work

Content, Cognition, and Conceptual Layers



- The *conceptual layer* consists of the core idea of what's in educators' and students' minds.
- The *cognitive layer* includes the mental skills that are used to transform content into conceptual products.
- The *content layer* consists of the information that is used to communicate academic concepts.

The Academic Work Challenge

Educators and students are regularly out of sync with one another because the content, cognition and conceptual elements of academic work are misaligned. This misalignment creates unhelpful tension. Further complicating matters, educators and students come to course material from two different perspectives. Educators must deconstruct their knowledge. This requires them to back out of their highly conceptual knowledge and consider the cognitive and content elements of the course. On the other hand, students must learn to construct knowledge. This process requires them to use their cognitive skills to develop the course content into the conceptual knowledge their educators' desire.

During our time together, we will explore learning from student and faculty perspectives. We will use tools and tactics to help position educators to equip students for more rewarding learning and greater academic success.



Metacognitive Instruction Checklist (In-Class Educators)

Planning

1. I have created metacognitive learning outcomes (MLOs) that meet the *Good, Better, Best MLO* Rubric. (True/False)
2. I have developed a Metacognitive Action Plan (MAP) for my course. (True/False)

Strategy

3. I use my syllabus and/or other tools to explicitly show students relationships between the daily course content, modes of thinking and the academic products for my course. (True/False)
4. I introduce the essential thinking skills within the first week of my course. (True/False)
5. I avoid *outcome confusion* by modeling in my instruction the modes of thinking students will encounter on my assessments. (True/False)
6. I share the metacognitive tools I use with my students. (True/False)
7. I provide direct feedback about students' thinking throughout the course. (True/False)
8. I incorporate low stakes thinking assignments to assess students' thinking levels throughout the course. (True/False)

Feedback (Open ended)

9. How has thinking metacognitively impacted your instruction?
10. How has using a metacognitive instructional approach impacted your students?

Metacognitive Checklist for Students

Planning

1. I have identified the general thinking skills needed for this course. (True/False)
2. I have at least one metacognitive tool to help me handle complex thinking. (True/False)
3. I have identified the links among the course content, the requisite thinking skills, the course outcomes and respective assessments.

Monitoring

4. I will supervise my thinking to make sure it's aligned with the required modes of thinking. (True/False)
5. I will adjust my thinking when appropriate. (True/False)
6. I will use my metacognitive tool(s) to help me think clearer and better. (True/False)

Evaluation

7. I have assessed the quality of thinking I've invested in my work. (True/False)
8. I'm certain I've used the appropriate thinking skills. (True/False)

Feedback (Open ended)

9. How has thinking metacognitively impacted your academic work in this course thus far?
10. How has thinking metacognitively impacted your academic work in other courses thus far?

Learning Outcome Decoder

Cognitive work that involves recalling previously learned material.

- define
- describe
- identify
- list
- locate
- name
- quote
- recall
- recite
- recognize
- reproduce
- record

Cognitive work that involves supporting information with rationales or evidence.

- appreciate
- apprehend
- assimilate
- comprehend
- explain
- grasp
- interpret
- opine
- perceive
- postulate
- realize
- support

Cognitive work that involves applying acquired knowledge to new problems and contexts.

- administer
- calculate
- complete
- compute
- illustrate
- practice
- produce
- solve

Cognitive work that involves critiquing, comparing, contrasting and distinguishing information.

- analyze
- classify
- compare
- contrast
- differentiate
- discriminate
- distinguish
- infer

Cognitive work that involves making judgments with or about information, ideas or work quality.

- argue
- assess
- choose
- conclude
- criticize
- decide
- evaluate
- judge
- persuade
- predict
- select
- summarize

Cognitive work that involves constructing new information from existing material.

- compose
- construct
- create
- design
- devise
- formulate
- hypothesize
- invent
- modify
- produce
- reorganize
- synthesize

Metacognitive Learning Outcome Rubric

High Value	Medium Value	Low Value	No Value
<ol style="list-style-type: none"> 1. Outcomes accurately reflect the core knowledge products students must produce. 2. Outcomes are hierarchically organized. 3. Outcomes are specific and action-oriented. 4. Outcomes are limited to no more than eight. 5. Outcomes include the respective thinking skills needed to produce the knowledge product. 6. The method of demonstration is included. 	Includes 5 of 6 of high value criteria	Includes at least 4 of 6 high value criteria	Includes 3 or less of high value criteria

less managing up required



more managing up required

Lower Order Thinking Skills

Surface Approach to Learning

Metacognitive Learning Goals	Bloom's Higher Order Thinking Skills	Corresponding Learning Outcomes	Outcome Valuation
<p>To Identify or Define Information</p> <p>Students seek to answer some form of this what-based question: Can I list and/or define the key terms?</p>	<p>Remembering</p> <p>Students work to recall/recognize information, ideas, and principles in the approximate form in which they were learned.</p>	<p>Able to Recall or Duplicate Information</p> <p>Students will be able to reproduce information in similar form as the original source. Corresponds to tasks in which cues are embedded</p>	
<p>To Explain Information</p> <p>Students seek to answer some form of this why-based question: Can I explain the reasoning behind the ideas/concepts.</p>	<p>Understanding</p> <p>Students work to explain and provide rationales to support concepts and/or principles.</p>	<p>Able to Provide Rationales for Information</p> <p>Students will be able to explain why concepts are essential to understanding the topic, subject, story, etc. Corresponds to tasks that require explanations or elaborations.</p>	
<p>To Apply Information to New Situations</p> <p>Students seek to answer some form of this how-based question: Can I apply this information to a new or different situation, problem or context?</p>	<p>Applying</p> <p>Students work to transfer principles and/or concepts to a different problem or task with minimal cues or direction.</p>	<p>Able to Apply Information to Different Situations</p> <p>Students will be able to use information to complete a problem or task with minimal direction or cues. Corresponds to tasks that require application of knowledge to a situation.</p>	
<p>To Compare and Contrast Information</p> <p>Students seek to answer some form of this analytical question: Can I distinguish processes, procedures or principles from seemingly identical processes, procedures or principles?</p>	<p>Analyzing</p> <p>Demands that students be able to distinguish and differentiate between comparable processes, functions, methods, etc.</p>	<p>Able to Discern Nuances of Information</p> <p>Students will be able to discern patterns, differences and similarities within information. Corresponds to tasks that require students to distinguish between similar sets of information, processes or outcomes.</p>	
<p>To Make Judgments About Information</p> <p>Students seek to answer some form of this evaluative question: Can I determine the best rationale, plan, solution, course of action, etc., given the information.</p>	<p>Evaluating</p> <p>Demands that students be able to make judgments with information.</p>	<p>Able to Reach Conclusions with Information</p> <p>Students will be able to make judgments about information they've analyzed. Corresponds to tasks that require students to decide which course of action, solution or option is best.</p>	
<p>To Introduce, Develop a Viewpoint</p> <p>Students seek to answer some form of this generative question: Can I synthesize the information in an original way?</p>	<p>Creating</p> <p>Demands that students be able to construct new information from existing information.</p>	<p>Able to Produce New Information</p> <p>Students will be able to present new meaning or generate new knowledge. Corresponds to tasks that require students to produce authentic work.</p>	

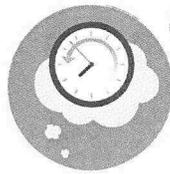
Deep Approach to Learning

COMPENDIUM OF THINKING SKILLS



ACQUIRING

The process of gathering and storing bits of information.



REMEMBERING

The process of drawing upon past experiences for present or future applications.



APPLYING

The process of making information usable.



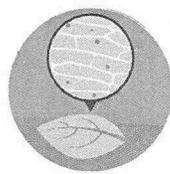
UNDERSTANDING

The process of comprehending information.



ENCODING

The process of translating information into a form that can be mentally processed.



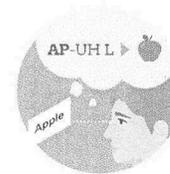
EXPANDING

The process of increasing the size, volume or scope of information.



EXPOUNDING

The process of providing details to information.



DECODING

The process of extracting meaning from information.



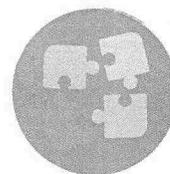
ANALYZING

The process of closely examining information to draw out the essential elements.



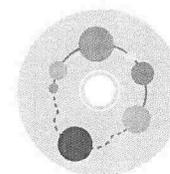
INDUCING

The process of drawing generalities from information.



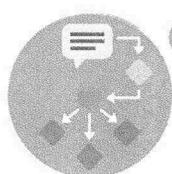
INTEGRATING

The process of bringing together parts into a whole.



SYNTHESIZING

The process of merging ideas into a unified entity.



INTERPRETING

The process of providing subjective meaning to information.



DEDUCING

The process of reaching logical conclusions from information.



INFERRING

The process of making interpretations based upon information.



EVALUATING

The process of weighing information to make a determination.



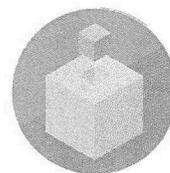
TRIMMING

The process of removing things deemed unnecessary.



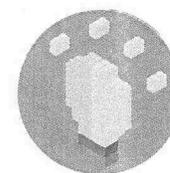
IMAGINING

The process of using information to develop mental imagery of things not present.



ABSTRACTION

The process of handling the qualities of information apart from the specific entity.



CREATING

The process of bringing something new into existence.

Assignment A – Decoding Course Outcomes

Academic work requires students to produce study outcomes that match their courses' learning outcomes. When students know the types of knowledge products they must generate, they can study with certainty and confidence.

Students who decode their course outcomes upfront establish a clear path from academic work to successful course outcomes.

Decoding Course Outcomes is considered "Assignment A" because it is the job you must do first.

Instructions

1. Use the *ThinkWell-LearnWell Diagram* and the *Outcome Decoder Tool* to examine the learning goals from one of your current course syllabi.
2. Circle the thinking skills (the action verbs) that are embedded within each goal.
3. Use the columns below to separate the outcomes and the respective thinking skill(s).
(If the thinking skills are not explicitly detailed, then deduce them from the statement by asking: *What type of thinking is required to produce this outcome?*)

Course Outcome

Thinking skill(s)

Example #1: Distinguish between ionic and molecular compounds.

Analyze

Example #2: Define atomic number, mass number and isotopes.

Remembering

Providing Metacognitive Assistance

Course Outcome

Thinking skill(s)

Visual Thinking Space

If needed, use the space below to visually convert your course learning outcomes to thinking skills.

Assignment B – Optimizing Your Thinking

The most productive students are strategic. They wisely use their thinking skills to produce the knowledge products their courses demand. Studies show that students with these sophisticated abilities are more efficient studiers, find learning more rewarding, and they perform higher than their peers.

The *Optimizing Your Thinking* exercise helps you compare your current thinking to the modes of thinking required for your course and clarifies the thinking skills you must use to do your academic work.

Instructions

1. Use the *ThinkWell-LearnWell Diagram* to conduct a notes analysis of your own notes.
(A notes analysis is a tactic whereby you determine the thinking skills that are reflected in your notes.)
2. Write a brief reflection on
 - a. what your notes reveal about your thinking,
 - b. how your thinking aligns with the thinking required in your course, and
 - c. any actions you can take to optimize your thinking.

Example of a Notes Analysis

Personal Notes Analysis	Thinking Alignment	Thinking Optimization Actions
I noticed my notes fall within the remembering and understanding levels. They mostly consist of terms and principles we covered in class. I have expanded them in my notes in ways that explain why they are important to what we are learning in class.	My notes are not aligned with the thinking that will be required throughout the course. Although I have added the understanding level, this is not deep enough. Based on my course's learning outcomes and our first test, I will need to use my analyzing and evaluating skills. My notes fail to analyze or evaluate the material.	I will use the scaffolding tactic and calibrated questions with the ThinkWell-LearnWell Diagram to learn the material at a deeper level. I will use the scaffolding tactic to build toward analyzing and evaluating thinking levels. I will use calibrated questions to review my notes after class and ask questions such as, "How do principles compare to each other?" "Are there similar concepts that I can compare and contrast?" and "Which solution is best, given the circumstances?"

Thinking Optimization Exercise

Use the spaces below to define your role for each respective learning outcome you decoded in *Assignment A*.

Personal Notes Analysis	Thinking Alignment	Thinking Optimization Actions

Assignment C – Redefining Your Role

Once students have decoded their course outcomes and optimized their thinking, they're ready to redefine the academic work they must do.

Redefining Your Role is "Assignment C" because it's the final step in the ABCs of academic work sequence.

This worksheet helps you explicitly connect the cognitive work you must do to the broader course conceptual work.

Instructions

1. Review the Decoding Course Outcomes and thinking skill separation work you completed in "Assignment A" and the optimization work you did in "Assignment B."
2. Combine the assignments A and B to define the role you must fulfill to satisfy the learning outcomes.
3. Write the role(s) you must play to satisfy each respective learning outcome. Use the *Redefining Your Roles Workspace* to write your responses as action statements.

Course Outcome	Thinking skill(s)
Example #1: <u>Distinguish</u> between ionic and molecular compounds.	Analyze
Example #2: <u>Define</u> atomic number, mass number and isotopes.	Remembering

Defined Role

I must compare and contrast ionic and molecular compounds.

I must know what the atomic number and the mass number represents, and what isotopes are.

Benefits of Assignment C

When students define their roles, they

- eliminate ineffective thinking patterns by strategically using their cognitive skill,
- transition away from using unhelpful time-based and effort-based study metrics to using outcome-focused metrics, and
- avoid wasting time doing work that is not required.

For example, the defined role in the second example requires students only to know what atomic numbers, mass numbers and isotopes are. By defining their role, students become acutely aware that they are not required to do more complex work, such as distinguishing or evaluating, with this content. They can plan their studying accordingly and measure their success by whether they have achieved the required outcomes.



**FLORIDA POLYTECHNIC
UNIVERSITY**

Peer Learning Strategists

Information Meeting

August 26, 2021

1



FLORIDAPOLY

- **What's this About? – Dr. Dvorske**
- **What can you expect as a PLS for Intro to STEM – Dr. Vollaro**
- **What can you expect as a PLS for Mathematics? – Dr. Brilleslyper**
- **What are the next steps? – Indira Sukhraj**

December 30, 2021

2

2



What is this?

FLORIDAPOLY

- **Institutional Accreditation – Reaffirmation**
- **Special Project – “QEP” 5-year**
- **Our Special Project – FL PEER (Florida Poly Engaged Education pProject)**
- **A peer-supported academic and student success initiative where students undergo training and guidance to lead fellow students through academic challenges and student life experiences.**
 - **Improve students’ learning experience**
 - **Help students excel in their coursework and professional skills by becoming leaders**
 - **Grow campus engagement and personal success**

December 30, 2021

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3



1st Phase

FLORIDAPOLY

- **Focus on Freshman Year that begins with Peer Learning Strategists**
- **Peer Learning Strategists (PLSs) help students do academic work more productively by helping them optimize their thinking and effectively manage their learning. As PLSs, you use a variety of resources to develop students’ metacognitive skills and improve their ability to do academic work.**

December 30, 2021

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4



PLS Duties

- **Your responsibilities will include**
 - Probing students to discover gaps between their study goals and their course and task learning goals,
 - Effectively using tools and tactics to improve students' learning skills,
 - Conducting individual and group sessions that improve students' capacity to do academic work,
 - Participating in training events that further develop your peer learning strategist knowledge and skills,
 - Collecting and recording data on students' learning experiences,
 - Provide a feedback loop to faculty on learning challenges and support grading
- **Courses w. assigned PLSs**
 - Intro to STEM
 - Pre-Calc, Calc 1, Calc 2
 - Deliver **Guided Learning Sessions** and facilitate group coordination and independent learning

By serving as a peer learning strategist, you not only help your peers achieve their academic goals, but you expand your capacity to thrive as well.

December 30, 2021
5

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More details

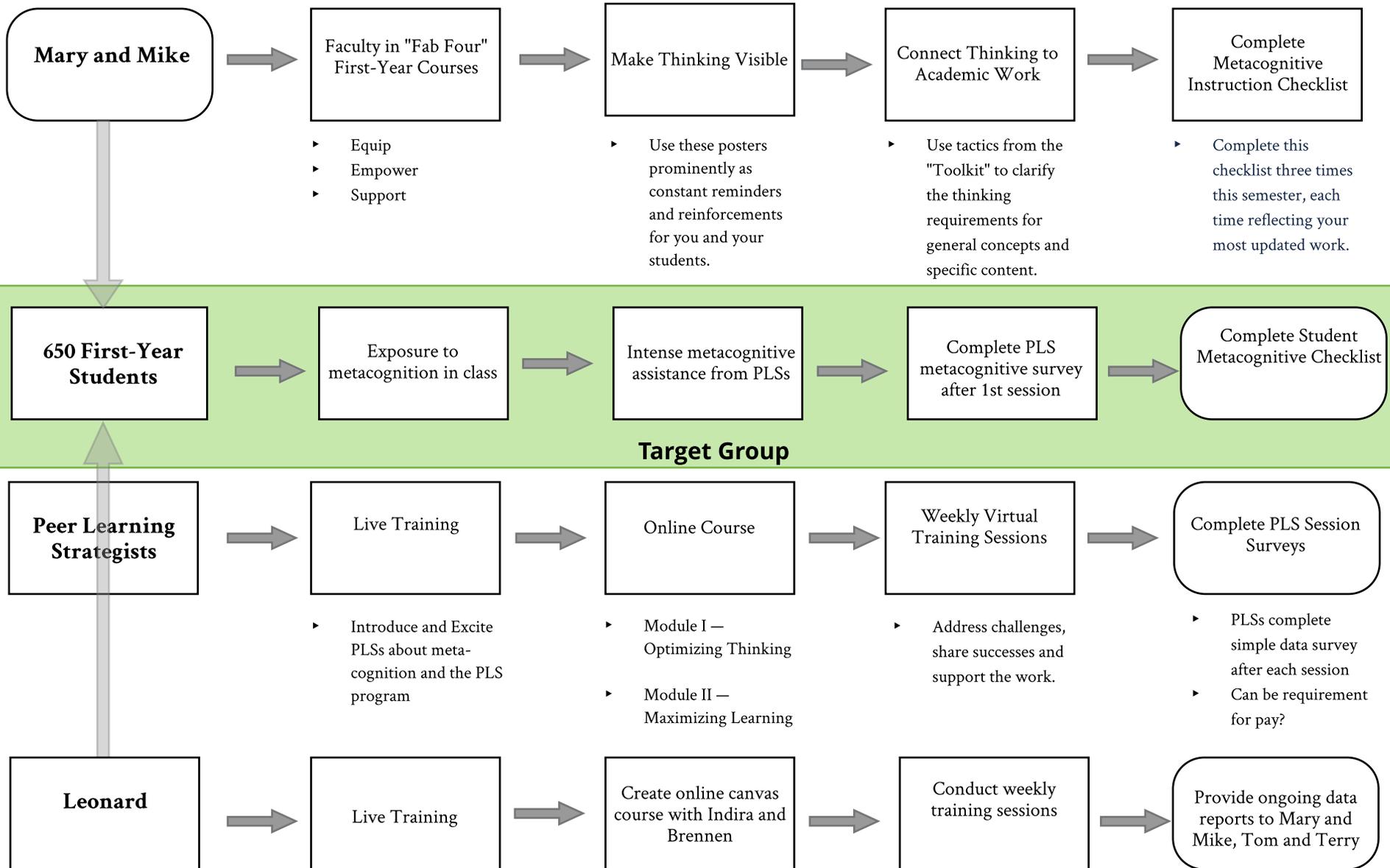
- **Dr. Vollaro**
- **Dr. Brilleslyper**
- **Ms. Indira Sukhraj**

December 30, 2021
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 FLORIDAPOLY
<h1>Questions?</h1>
December 30, 2021 7

Metacognitive Project Components



Appendix. 6. Spring 2022 Plans/Documents



FLORIDA POLYTECHNIC
UNIVERSITY

December 14, 2021

To: Mary Vollaro (Chair ME and EnvEng programs), Michael Brilleslyper (Chair Applied Mathematics Program)

From: Terry Parker, Provost

Re: Peer Learning Program for the spring semester, 2022

Cc: Kathryn Miller, Vice Provost Student Affairs
Tom Dvorske, Vice Provost Academic Affairs
Melissa Vazquez, Director Academic Affairs

Thank you both for your leadership and dedication to the success of this program in the fall semester 2021. As you know we are trying to strategically grow this program to be self-sustaining as we move forward. To this end, we will:

- 1) Retain Leonard Geddes as an ongoing consultant and “trainer” for the spring semester. His tasks are included in a separate memo which you have seen.
- 2) Ask both of you to “co-lead” the PLS program for the spring. This includes:
 - a. Hiring students as PLS leaders for the spring to support Intro to STEM and targeted math courses. We are adding Chemistry I to the course list, I expect that you will hire students to staff this effort also.
 - b. Consult with me on strategic expansion of the program and what can be done well and sustainably. This decision needs to be made by December 17, 2021.
 - c. Work with Leonard Geddes to support the program. Here, I need you to be points of contact for him and to support the tasks laid out in the attached document. Where possible we need to leverage his experience and “external” positioning to be an effective change agent.
 - d. Work With Leonard Geddes to produce “expectations for faculty that teach courses where PLS is an embedded support system.”
- 3) Resources that are available to you are:
 - a. Dara Griffiths will provide administrative support for student hiring, managing their time in terms of workday, managing day-to-day problems with student schedules and difficulties.
 - b. You have discussed creating Team Captains as a part of PLS; please do so, specify the role of these individuals and use them to proactively provide support for the system that is effective and efficient. Work with Melissa Vazquez to identify appropriate pay levels for the PLS students.

4700 RESEARCH WAY
LAKELAND, FL 33805-8531





December 14, 2021

To: Leonard Geddes, The Learnwell Project

From: Terry Parker, Provost Florida Polytechnic University

Re: Spring Support of Peer Learning at Florida Polytechnic University

Thank you for your effort this fall with support of our students and faculty in the area of metacognition and development of a peer learning program. For the spring, I would like you to provide costing for the following Tasks to continue with the project.

Task 1. Assemble supporting materials and deliver training to students and faculty to continue to develop Peer Learning at Florida Poly. The number of students will be approximately 30, and up to six key faculty members will be available for training. Trainings are approximately every other week, with four training sessions scheduled to be in person, the remainder to be virtual. Typical training for students is one hour in duration, typical training for faculty is ½ hour to one hour. Work with Vice Provost Dvorske to produce materials that sustain the effort in the coming academic year.

Task 2. Deliver trainings to academic departments. These will be in person trainings that are ½ hour to one hour in duration, in person, and will cover topics that we mutually decide will be useful for the faculty. There will be five academic departments to be trained. We will work to produce training in the second week of the semester and then in the fifth (or so) week of the semester. Schedule will be configured to have one day include multiple training sessions. As a part of this we will consider to what degree some of the material can be produced to be "online" for later use by faculty.

Task 3. Work with the Academic Success Center to help them provide quality advice to students as non-experts in the student's curricular subjects. Here, the goal is to help them refine their role as support staff for students as they transition to the expectations of a university education. This will require one training per week in the second to fourth week (first one in person, the second and third virtual), and then once every other week with in-person meetings scheduled when you are on campus for other business.

Task 4. Consults biweekly for the first eight weeks with the Vice Provost of Student Affairs on how to gently manage the student body to embrace their education in an appropriate way. A focus here is how to use the very good effort in student activities to ultimately support student academic success.

Task 5. Review and help refine the QEP plan for SACSCOC. This task is focused on supporting development of the QEP and providing on the construction of the plan so that Peer Learning effort at Florida poly comes together as an appropriate QEP for SACSCOC.

4700 RESEARCH WAY
LAKELAND, FL 33805-8531



SPRING PLAN



We estimate the fees for this 16-week project to be: \$79,000.

PLS Program		
Activities	Duration	Participants
4 in-person training sessions	All-day	Varied
8 student PLS virtual training sessions	one-hour	30 student participants
8 virtual training sessions	30 minutes – one hour	6 faculty participants

Academic Departments		
Activities	Duration	Participants
4 in-person training sessions	All-day	Faculty from five academic departments
Creation of online training module	N/A	N/A

Academic Success Center (ASC)		
Activities	Duration	Participants
4 in-person training session	1-hour	ASC Staff
9 virtual training sessions	1-hour	N/A

Consultations with VPSA		
Activities	Duration	Participants
4 consultation sessions (in-person and virtual)	1-hour	VPSA

QEP Consultation		
Activities	Duration	Participants
Ongoing consultancy	On-going	VPAA; Varied

QEP Consultation		
Events	Per event rate	Total fees
4 in-person training and/or consultancy sessions	\$3,000/event	\$12,000
25 virtual training and/or consultancy sessions	\$1,800/event	\$45,000
1 online module (multi-use)	\$9,000	\$9,000
Ongoing QEP consultancy	\$13,000	13,000

\$79,000