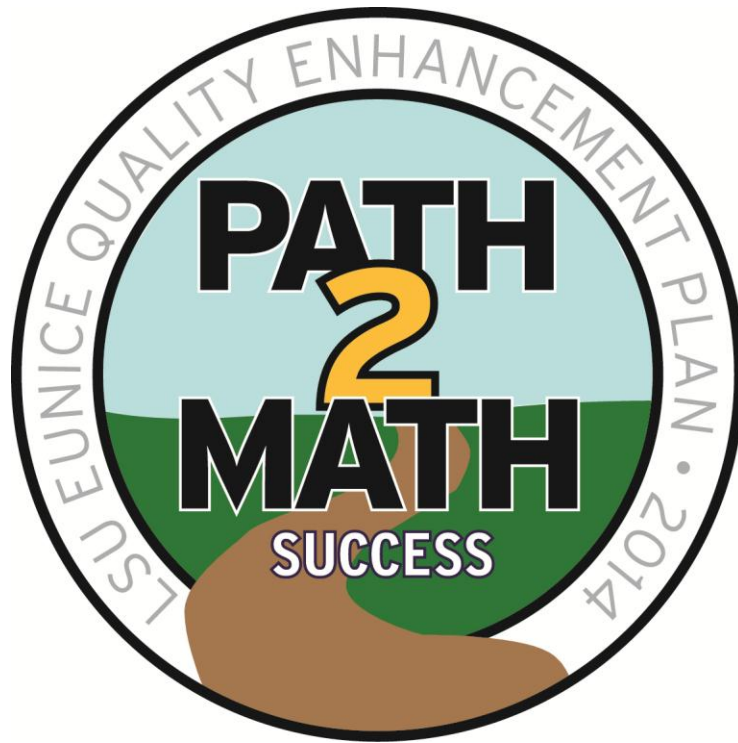# Louisiana State University Eunice

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Executive Summary

Louisiana State University Eunice's Quality Enhancement Plan (QEP), ***Path 2 Math Success,*** is the result of an examination of institutional data and dialogue between various institutional stakeholders including faculty, administration, staff, and students. These efforts led to a number of institutional issues and possible topics being identified as worthy of consideration. As the issues were narrowed, however, student retention emerged as a primary topic. From an institutional perspective, the emphasis on student retention and success is clearly outlined, including specific strategies to accomplish these institutional goals in the FY 2011 through FY 2016 LSU Eunice Strategic Plan.

Further examination of the data revealed that student groups with problematic retention had one issue in common – lack of success in developmental mathematics. Through the examination of data, presentation of various reports, and an honest and straightforward discourse, developmental mathematics emerged as the primary topic of LSU Eunice's QEP. With implementation being scheduled over three years, ***Path 2 Math Success*** creates a variation of the "Mathematics Emporium" course delivery system where students attend class once a week and then spend time in a mathematics lab using video lecture and computer software to learn the material. At LSU Eunice, two courses – Pre-Algebra and Introduction to Algebra – will be competency-based, with mandatory weekly attendance and modular structure including more frequent assessment over smaller "chunks" of material. Features of the program include

1) a module pretest:
    a) Students demonstrating a minimum level of competency in a particular module may skip it.
    b) Students who do not achieve a minimum level of competency will watch video lectures and complete computerized homework assignments.
2) three opportunities to demonstrate competency of the subject matter in the module, with intervention such as targeted homework and tutoring if necessary.
3) the option to complete more than one course in a semester, saving students money and reducing their time in developmental education.

Actions which are required to execute, assess, and revise the plan will be integrated into the existing institutional comprehensive planning and evaluation plan. The plan consists of three goals. The QEP seeks to

Goal 1: Increase student learning in developmental mathematics using innovative techniques of instruction;

Goal 2: Increase student success in the first general education mathematics course after completion of developmental mathematics;

Goal 3: Improve institutional effectiveness by providing faculty training, increasing student retention in mathematics, and decreasing time spent in developmental mathematics.

   Specific student learning outcomes and a comprehensive assessment plan accompany each goal to guide implementation, promote success, and revise the QEP in progress if necessary.

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Path 2 Math Success
Introduction

The choice of LSU Eunice's Quality Enhancement Plan (QEP), ***Path 2 Math Success***, was developed through a systematic process taking over 18 months. The process involved every campus constituency's using surveys and discussions to narrow numerous institutional issues down to seven, with student retention leading the list. Through a series of reports based on data summaries over several years, it was found that developmental students, primarily those with 16- and 17-composite ACT scores, were not being retained when compared to the other student groups. Realizing that student retention alone does not rise to the level of a QEP, the reports were further scrutinized to determine institutional problems leading to the retention issues. The data pointed to a specific content area – namely the two developmental mathematics courses – that acted as a barrier to student success and retention, with only 51% of the 16-composite and 56% of the 17-composite students successfully completing the first developmental mathematics course with an A, B, or C during their initial semester of attendance.

Expanding the success in the two developmental mathematics courses to all students over a five-year period revealed that only 68% of those who register for the first developmental mathematics course (Pre-Algebra or MATH 0001) ever complete it. In addition, only 37% go on to successfully complete the second developmental mathematics course (Introduction to Algebra or MATH 0002), and only 20% go on to complete their first general education mathematics course (College Algebra or MATH 1021). The results for MATH 0002 are only slightly better in that one-third (33%) of the students who originally begin in the second developmental mathematics course (MATH 0002) successfully complete their first general education mathematics course.

To address the problems of developmental mathematics acting as a barrier for students who were not college ready, LSU Eunice's ***Path 2 Math Success*** seeks to implement a variation of the "Mathematics Emporium." The proposed program will be computer-based, utilizing two classrooms and a mathematics laboratory, with lectures being presented via computer and the instructor acting as a resource person. ***Path 2 Math Success*** will be modular, meaning that the developmental mathematics course material will be broken up into smaller "chunks" with more frequent assessment. The proposed program will also be competency-based, requiring students to obtain a minimum score on assessments prior to continuing to the next module. Students will be required to attend class once a week, with attendance in the mathematics classroom and laboratory being mandatory. The program was developed using the

best practices from Alabama's Northwest-Shoals Community College, the National Center for Academic Transformation, and John Squires at Chattanooga State Community College.

The goals of the QEP are as follows:

1. increase student learning in developmental mathematics using innovative techniques of instruction;
2. increase student learning in the first general education mathematics courses after completion of developmental mathematics;
3. improve institutional effectiveness by providing faculty training, increasing student retention in mathematics, and decreasing the time spent in developmental mathematics.

Each of the goals have measureable objectives and student learning outcomes (SLOs) that will be assessed using student data that compares results to the institutional data for face-to-face methodology.

Background Information

Establishing the Problem

The search for a Quality Enhancement Plan (QEP) topic officially began in January 2012 when then-Vice Chancellor for Academic Affairs Dr. Stephen Guempel met with each major constituency on the LSU Eunice campus to discuss the purpose for the QEP and brainstorm possible topics. Meetings took place with the

- Office of Information Technology staff,
- Library staff,
- Student Affairs staff,
- Academic Council,
- Division of Health Sciences and Business Technology faculty and staff,
- Division of Liberal Arts faculty and staff,
- Division of Sciences and Mathematics faculty and staff,
- Business Office staff,
- Athletics faculty and staff, and
- Student leaders.

The resulting list had 43 broad topics from faculty, staff, and students, which were then narrowed to seven by grouping them by common themes. The seven possible topics were then sent out to faculty and staff for ranking at the beginning of March 2012. In no particular order, the topics were

1. Develop a centralized enrollment center that includes admissions, financial aid, business office, and academic advising;

2. Enhance online instruction by training students in electronic resources, online course readiness screening, and by training faculty in online instructional resources and pedagogy;

3. Enhance student retention by developing a centralized advising center, expanding the use of learning communities, implementing an online degree tracking system, creating a campus tutorial center, requiring the freshmen orientation course, and implementing an intervention plan for underachieving students;

4. Centralize developmental education under a single academic unit;

5. Redesign developmental mathematics courses to include a computer laboratory component;

6. Develop a comprehensive recruitment plan to include strategies to recruit early-start students, high-performing high school students, and non-traditional students; and

7. Enhance student support services by expanding electronic services that include an online freshmen orientation, social media applications, online career assessment, electronic tracking of student class attendance, and a testing center for placement tests and online examinations.

The survey also included a place for "other" to allow for the identification of a topic not included in the seven listed (see Appendix A). When the results were tabulated, the recommended choice, by far, was item three – student retention. This was followed by item number six – recruiting – and then number one – the centralized enrollment center. By mid-April, a work group was formed to gather data on the primary topic – retention of students. The purpose was to investigate whether any particular student subgroup was not being retained using the Louisiana Granting Resources and Autonomy for Diplomas Act (LA GRAD Act) definition of one-year retention – first-time full-time Associate Degree (FT FT AD)-seeking students. The LA GRAD Act was used as a benchmark since performance funding is tied to success and, in part, to the retention of FT FT AD-seeking students. The work group was charged with submitting their analysis of the 2001 – 2010 retention data; however, the work group was not expected to develop a retention plan or develop the topic for QEP.

The work group presented the report on June 15, 2012, finding baseline retention for FT FT AD-seeking students equal to 49%. In addition, the group found that retention for Blacks (non-Hispanic) was lower than that of Whites (non-Hispanics). It was also lower for students having an ACT composite of 16 and those who enter with a GED. The work group also noted that students from certain high schools were not being retained, along with certain majors such as nursing and radiologic technology. However, it was also noted that students from certain high

schools typically transfer to four-year institutions within a year since most were not really seeking an associate degree. In addition, nursing and radiologic technology students comprise the two largest student groups on campus. It would then follow that the retention rates would be the most problematic given the numbers of students who begin the programs and then realize that the academic rigor is too great for them.

The student populations identified in the work group's analysis – minority students, those with GEDs, and those with an ACT composite of 16 – piqued the SACSCOC Leadership Team's curiosity, leading to two additional reports with one being presented on July 5, 2012, discussing the retention of all FT FT students with an ACT composite score of 16, and one on July 15, 2012, discussing the retention of FT FT AD-seeking students. Table 1 presents summary data from both reports based from fall 2006 to fall 2010 for students in their first semester of attendance.

Table 1
Findings on the first semester of attendance for 16 ACT composites from fall 2006 to fall 2010.

Description	All FT FT Students	FT FT AD Seeking
Total n	200	176
Mean percent retained one year	40	36
Percent completing at least one course	68	61
Mean grade point average	1.392	1.306
Mean courses completed over five years in percents*	68	61

Note. *Success is defined by a course grade of A, B, or C only.

At the same time, separate discussions were taking place within the SACSCOC Leadership Team about the possibility of simply including the 16-composite students in the Pathways to Success Program, which was the QEP topic from 2004. The data certainly seemed to suggest that the 16 ACT composite students could benefit from the structure of Pathways. However, the problematic nature of simply building on an existing QEP, given that it could lead to a finding of non-compliance on Core Requirement 2.12, was also discussed. In addition, the SACSCOC Leadership Team felt that it was not their place to decide the QEP topic. The team also thought that further information was needed and asked for a report on the first semester performance of all Pathways to Success students who had an ACT composite of 15 and below compared to students who had an ACT composite of 16 or 17. The data in the Comparison Report included all students over the five-year span because leadership team members noted

that a large proportion of first-time part-time students were being excluded as a result of using the FT FT and FT FT AD LA GRAD Act labels.

The Comparison Report on Pathways students and the 16- and 17-composite students examining first semester performance was presented on September 24, 2012. Instead of studying fall 2006 through fall 2010, the report included fall semester data from 2007 through fall 2011 since the census day had passed for fall 2012 (see Table 2). By its very nature, the report included the majority of the three groups of interest to the SACSCOC Leadership Team from the outset. First, the 16-composite students were purposely studied; however, this category also included 75% of the minority students and 76% of the GED students that were first-time freshmen over the five-year period. The remaining minority and GED students had an ACT composite score higher than 17 and were not included in the data set.

Table 2
Comparison Report data from the first semester of attendance for fall 2007 through fall 2011.

Description	Pathways	16-Composite	17-Composite
Total n	2346	1020	1187
Mean percent retained for one year	47	38	45
Percent completing two or more courses	71	64	69
Mean grade point average	1.992	1.683	1.867
Mean courses completed over five years in percents	64	53	59
Course with highest failure rate based on total frequency of enrollment	MATH 0001	MATH 0001	MATH 0001
Success rate in MATH 0001 based on total n in percents[*]	55	51	56

Note. *Success is defined by an A, B, or C only.

The Comparison Report suggested that the Pathways to Success students were outperforming students with higher ACT composites based on retention, course completion, and GPA upon the conclusion of the first semester of attendance. The report also indicated that the most challenging course for students was MATH 0001, appearing in every semester over the five years and having an average success rate of 55% for Pathways students, 51% for 16-composite students, and 56% for 17-composite students (see Table 2).

The data in Table 2 seemed to suggest two institutional problems related to the retention of first-year students in the data sets studied. The first was that students in the 16- and 17-composite groups were not successfully completing their coursework, resulting in lower GPAs. Second, Table 2 also suggested an additional institutional problem for all three groups studied –

success in developmental mathematics. Both topics were worthy of study by the QEP committee.

The QEP Committee

Simultaneous to the discussion in the SACSCOC Leadership Team meetings and the reports being written during fall 2012, the Vice Chancellor for Academic Affairs, the Chancellor, and the Accreditation Liaison were in the process of seating the chair and the actual QEP Committee from the entire campus community. This group, listed in Appendix B, would further examine the data, finalize the topic choice, and develop the implementation plan. Through presentation of the data in the reports and discussion at several meetings, the QEP committee took an even closer look at the two institutional-wide problems suggested by the reports and began discussing possible solutions. The Committee also wanted to impact the largest number of students and meet SACSCOC conditions in terms of increasing student learning within available resources.

Final Selection of the Topic

With the QEP Committee in place, discussions took place to decide which of the two problems should be addressed given current institutional resources and the short development time. First, a possible solution to increase the success and retention of the 16- and 17-composite students came in the form of a first-year experience similar to, but separate from, Pathways to Success. The proposed first-year experience would deal with increasing student learning and effectiveness related to academic advising, placement, orientation, and transition of new students. There was, however, a concern about the resources and the time that would be needed to create such a program.

Interestingly enough, possible solutions for increased learning and success in developmental mathematics did not originate with the QEP Committee. Instead, the discussions originated separately with the mathematics faculty in spring 2011 as they began generating student learning outcome data in the two developmental mathematics courses and the first general education mathematics courses. The mathematics faculty felt that a change was needed due to the high failure rates and potential impact on student retention. Very simply, there was an expressed interest in changing the instructional methodology and course delivery method because it was felt that traditional face-to-face methods were not working for the students. Around the same time, an article entitled "Redesigning the Basics: Tennessee's Community Colleges Use Technology to Change Their Approach to Developmental Reading

and Math" (Mills, 2010) was being circulated. The article detailed the success that Cleveland State Community College was having with a new type of computer based methodology. However, the article was quickly dismissed with the feeling that such methodology "would never work" at LSU Eunice.

Nevertheless, LSU Eunice personnel attended "Rethinking Developmental Courses through Redesign: Innovation Toward Excellence," presented by Dr. Timmy James and Mr. John McIntosh at the 2011 SACSCOC Annual Meeting in Orlando. The presenters mostly discussed the success that Alabama's Northwest-Shoals Community College had by implementing a computer-based Modular Mathematics program that was competency-based. Upon returning, a presentation was made to the mathematics faculty, and the mathematics faculty asked for additional information. The request led to a site visit in Alabama in October 2012, when the Director of Developmental Education and a member of the mathematics faculty who teaches developmental courses went to Northwest-Shoals Community College to examine their computer-based Modular Mathematics program. The two filed a report with the Vice Chancellor for Academic Affairs, the Chancellor, and the Interim Division Head for Sciences and Mathematics, recommending piloting a similar methodology since it had a positive effect at another two-year institution similar in size (see Appendix C). At a departmental meeting on November 20, 2012, the mathematics faculty decided to implement a pilot project involving the use of a variation of the Mathematics Emporium with a computer-based, competency-based modular developmental mathematics program (hereafter referred to as Modular Mathematics[1]) with a mandatory attendance requirement. This information was shared with the QEP Committee where the mathematics faculty noted that the pilot project would proceed whether developmental mathematics was the QEP topic or not since a computer laboratory had already been obtained for the project and a grant was being written to fund the capital improvements.

In December 2012 and January 2013, presentations were made to the QEP Committee on both topics: the first-year experience for all students and a modular developmental mathematics sequence that would be competency-based and use a computerized format. The QEP Committee held a vote on January 18, 2013, and chose the modular developmental mathematics program by a vote of 12 to 5, with the Chair and Accreditation Liaison abstaining.

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[1] The term "Modular Mathematics" seemed more appropriate than the Mathematics Emporium since the mathematics department wanted to maintain a mandatory class attendance policy each week. Traditional Mathematics Emporium courses typically have no such requirement.

Additional Data Presented on Mathematics Success Rates

Developmental Mathematics

Even though the choice of QEP topic was made based on the data contained in the Comparison Report (see Table 2) for Pathways, 16-composite and 17-composite students' additional data were generated that extended to all students. This was accomplished by measuring student success in the first developmental mathematics course (MATH 0001) using direct means through student learning outcomes (SLOs) on the final exams and indirect means using student grades. For example, while the direct assessment of SLOs in MATH 0001 indicated that the outcomes had been improving over three years, students were not doing as well on outcome B and C (see Table 3). In fact, the scores for algebraic operations did not meet the 70% benchmark in any of the three years. Similarly, the results for basic geometry had not improved much either (see Table 3). As a result, student success measured indirectly through student grades based on all students registered on census day hovered around 49% for four years until improving to 56% in 2011-2012 (see Table 4).

Table 3
SLO success data for all students enrolled in MATH 0001 taking the final exam.

Student Learning Outcomes	Sp 2011		AY 2011-2012		AY 2012-2013		Overall	
	n	%	n	%	n	%	n	%
A. Manipulate order of operations with real numbers	259	68.1	714	77.1	608	78.1	1581	76.0
B. Perform basic algebraic operations with expressions and linear equations	259	58.1	714	66.2	608	67.7	1581	65.4
C. Geometry	259	--	714	63.7	608	66.8	1581	65.1
Overall	259	64.7	714	71.6	608	73.0	1581	71.0

In addition, there is a nuance worth noting in the data between Table 3 and Table 4. Taking the last academic year (2011-2012) studied, there were 1,023 students registered in the course as of the census days in fall and spring of each academic year according to Table 4. However, according to Table 3, only 714 took the SLO assessment contained on the final exam.

As a result, 309 (30%) of the students were lost to attrition, having either dropped the course or stopped attending by the time the final exam was given.

Table 4
Success rates for all students enrolled in MATH 0001 at the end of the semester.

Academic Year	n success*	Total n	% Success
2007-2008	404	814	49.6
2008-2009	455	936	48.6
2009-2010	572	1168	49.0
2010-2011	551	1133	48.6
2011-2012	571	1023	55.8
Total	2553	5074	50.3

Note: *Success is defined by the student receiving a final grade of A, B, or C.

Difficulty with algebraic operations in MATH 0001 subsequently led to the same issues resurfacing again in MATH 0002. In this regard, the SLO results from the final exam indicated that students were once again having difficulty with algebraic operations, only obtaining an average success rate of 64% since spring 2011 (see Table 5). Difficulty with basic geometric operations in MATH 0001 led to difficulty in performing operations with the rectangular coordinate system in MATH 0002, with students averaging a success rate of 66% during the same time period (see Table 5). Given these results, the lack of success in SLOs in MATH 0002 corresponded to the same results when measuring student success indirectly using grades. Over the AY 2007-2008 to 2011-2012, students only achieved an average success rate of 42% in MATH 0002 (see Table 6). In addition, the data in the two tables indicate that 197 (27%) of the 731 students enrolled were lost due to attrition in the 2011-2012 AY.

Table 5
SLO success data for MATH 0002

Student Learning Outcomes	Sp 2011		AY 2011-2012		AY 2012-2013		Overall	
	n	%	n	%	n	%	n	%
A. Perform basic algebraic operations	306	62.0	533	65.6	534	64.2	1373	64.3
B. Perform operations with the Rectangular Coordinate System	306	59.7	533	67.3	534	67.3	1373	65.6
Overall	306	64.9	533	67.0	534	66.0	1373	66.1

Table 6
Success rates for MATH 0002.

Academic Year	n success*	n total	% Success
2007-2008	267	618	43.2
2008-2009	264	638	41.4
2009-2010	358	795	45.0
2010-2011	370	826	44.8
2011-2012	269	731	36.8
Total	1528	3608	42.4

Note: *Success is defined by the student receiving a final grade of A, B, or C.

As Table 4 and Table 6 examine the success rates during one academic year, it was necessary to expand the same data to include all repeated mathematics courses during the same time period. Doing so increases the success rate for MATH 0001 to 68% (see Table 7). However, the data also indicates the real scope of the problem with developmental mathematics: only 37% of those originally enrolling in MATH 0001 go on to successfully complete MATH 0002, and only 20% go on to complete their first general education mathematics course. The results for MATH 0002 are only slightly better in that one-third (35%) of the students who originally begin in MATH 0002 successfully complete their first general education mathematics course. Table 7 also indicates that students who do not take developmental mathematics have a much better rate of success in general education mathematics.

Table 7
Percent of all students successfully* completing general education mathematics** after beginning with developmental mathematics during academic years 2007-2008 through 2011-2012.

Student Initially Enrolled in	Original n Enrolling	% of Students Successfully Completing MATH 0001	% of Students Successfully Completing MATH 0002	% Successfully Completing the First General Education Mathematics Course
MATH 0001	3978	68	37	20
MATH 0002	2787	--	66	35
MATH 1021	2456	--	--	71*

Note: * Success is defined by the student receiving a final grade of A, B, or C.
　　　　**Includes MATH 1014 and MATH 1021 for academic years 2007-2008 through 2009-2010.

Furthermore, for students enrolling in MATH 0001, it takes 2.6 semesters to complete developmental mathematics and 4.1 semesters to complete their first general education course, according to institutional data. Students originally enrolling in MATH 0002 take 1.6 semesters to complete their developmental education mathematics and 2.5 semesters to complete the first general education mathematics course.

These data emphasized the wide scope of the University's developmental mathematics problem in terms of the success, retention, and graduation of these students; needless to say, the LSU Eunice community wanted to increase student learning and success but was at a loss for what exactly to do. The mathematics faculty, however, has continually attempted to increase student success in the problem areas since spring 2011. For example, mathematics faculty examined each final exam, eliminating questions that did not fit within one of the SLOs. Multi-part questions, where students would miss part two and part three if they missed part one, were eliminated. In addition, final exam reviews were published on the Web for students to download and work at their convenience. Finally, the mathematics faculty focused on specific problem areas by spending additional time and retesting on a specific topic; however, only so much time could be spent on these trouble areas due to the amount of material that had to be covered. Throughout all of the activities, faculty had a firm desire to improve student learning and success while also maintaining the rigor necessary for students to successfully complete the first general education mathematics course.

The commitment from the mathematics faculty became apparent as they began developing the modules, began developing the details of the course, and chose the book before the QEP was finalized. Once the topic was approved, the QEP Committee and the Office of Developmental Education worked to develop an implementation plan, budget, and assessment plan. All three segments of the institution worked together to develop incremental changes that would benefit developmental mathematics students without outstripping LSU Eunice's ability to implement the project. The choice of the QEP, ***Path 2 Math Success***, using modular developmental mathematics, was endorsed by the Student Government Association on February 4, 2013. The Faculty Senate endorsed the topic on April 29, 2013, and the Faculty Council endorsed it on May 1, 2013.

Goals of the QEP

Based on the institutional problems and the needs of LSU Eunice developmental mathematics students, LSU Eunice's QEP Committee developed three primary goals. Goals 1 and 2 seek to increase student learning in both developmental and general education mathematics. Goal 3 seeks to increase institutional effectiveness by providing training for faculty members teaching courses associated with the QEP. Goal 3 also seeks to increase student retention and decrease the time spent by the students in developmental mathematics.

Goal 1. The QEP seeks to increase student learning in developmental mathematics using innovative techniques of instruction.

The objectives associated with Goal 1 are

Objective 1.1: The QEP seeks to increase achievement of student learning outcomes (SLOs) in MATH 0001 and MATH 0002.

Objective 1.2: The QEP seeks to increase the cognitive ability of students enrolled in MATH 0001 and MATH 0002 by course redesign.

Objective 1.3: The QEP seeks to increase student mathematics scores on the Collegiate Assessment of Academic Proficiency (CAAP).

Goal 2. The QEP seeks to increase student learning in the first general education mathematics courses after completion of developmental mathematics.

The objectives associated with Goal 2 are

Objective 2.1: The QEP seeks to increase achievement of student learning outcomes (SLOs) in Applied College Algebra (MATH 1015) and College Algebra (MATH 1021).

Objective 2.2: The QEP seeks to increase student mathematics scores on the Collegiate Assessment of Academic Proficiency (CAAP).

Goal 3. The QEP seeks to improve institutional effectiveness by providing faculty training, increasing student retention in mathematics, and decreasing the time spent in developmental mathematics.

The objectives associated with Goal 3 are

Objective 3.1: The QEP provides professional development opportunities in alternative forms of instruction to mathematics faculty teaching courses associated with the QEP.

Objective 3.2: The QEP will increase student retention and completion in the developmental and general education mathematics sequence.

Objective 3.3: The QEP will reduce the amount of student time spent in developmental mathematics.

A Review of Literature

Generally speaking, mathematics competency, along with reading and writing, is a problem for college students. In a 2003 report, the National Center of Education Statistics reported that in 2001, "Colleges required nearly one-third of first-year students to take remedial courses in reading, writing, or mathematics" (Bettinger & Long, 2005). In 2005, the Tennessee Board of Regents reported that "74 percent of entering freshman at two-year institutions" and 50 percent of non-traditional students (21 and older) required developmental classes (Lucas & McCormick, 2007). Approximately 27 percent of developmental students nationally are 30 or above (Bettinger & Long, 2005). Among community colleges, several studies "clearly identify developmental education, and particularly mathematics as a major barrier" to student success (Asera, 2011, p. 28).

There are a number of reasons why freshmen enter the university or community college needing mathematics remediation. In some cases, the students have the capacity to succeed at mathematics, but they lack interest or work ethic (Armington, 2002, p. 2). Such students, if they apply themselves, can succeed in either a developmental mathematics class or in a standard mathematics class. Others "are adequately prepared for college level study but have a specific weakness in mathematics." They perform well in other subjects but have specific problems with mathematical concepts. Another group is motivated but insufficiently prepared for college-level work in general. Other students suffer from some form of learning disability. The final group is varied, consisting of those with deficiencies in areas such as "mathematical abilities, learning skills, motivation, organizational skills," and others. These students "will have difficulty succeeding even when the programmatic aspects of developmental instruction are at their strongest" (Armington, 2002, p. 2). Other problems that developmental students face include "math anxiety, teaching and learning styles, and scheduling conflicts" (Apfaltrer & Zyman, 2008).

Despite the wide variance of developmental students' preparation, enthusiasm, and capability, remediation in general is successful in what it seeks to do: prepare students for college credit work. In a 2005 paper, Eric P. Bettinger and Bridget Terry Long (2005) detailed the results of a five-year study conducted with the assistance of the Ohio Board of Regents. They tracked "approximately 28,000 full-time, traditional-age freshmen at public colleges," using "variation in remedial placement policies across institutions and the importance of proximity in college choice [with data gathered from the questionnaire accompanying the ACT test]." They concluded that "students in remediation have better educational outcomes in comparison to students with similar backgrounds who were not required to take the courses….Over five years, mathematics and English remediation are estimated to reduce the likelihood of dropping out and increase the likelihood of completing a degree."

Despite this comparative success of remediation, studies by the Community College Research Center (CCRC) of completion rates "of the developmental [mathematics] sequence as a whole, rather than…success rates in a particular course….pointed out the low percentage of students who complete the sequence (overall 31% of students who start anywhere in developmental mathematics)" (Asera, 2011, p. 29). The Borough of Manhattan Community College of the City of New York (BMCC) reported in 2008 that "over 75% of [its] incoming freshmen lack the necessary skills to a take credit-bearing mathematics course and must take at least one of the developmental courses." The majority of these were required to take Elementary Algebra (MAT 051), for which, in 2006, "the passing rate…was 38% and approximately 12% of the students taking the class had taken it before." Based upon data from the BMCC registrar's office, approximately 60% of students "fail developmental courses at BMCC" (Apfaltrer & Zyman, 2008). An additional problem involves students' failure to complete developmental mathematics sequences. As the CCRC studies point out, "More students are lost before initial enrollment and between courses than from courses" (Asera, 2011, p. 29).

One of the problems with developmental mathematics courses stems from the traditional lecture approach. For example, the BMCC study concluded that "[s]ince there is such a large variation in students' mathematical proficiency, a lecture-based format of instruction is an inefficient choice for teaching [developmental] courses, because it leaves students behind, bored, or both." As an alternative, the study found that "[a] better approach is to teach a course based on practice" (Apfaltrer & Zyman, 2008). Indeed, this corresponds with a number of studies. In her study of alternatives to lecture-based courses, Rose Asera found that "[t]he models that were most effective were immersive and intensive" (2011, p. 28). In addition,

developmental students require courses that offer "the individualized attention that they so desperately need" (Apfaltrer & Zyman, 2008).

One especially effective method of course delivery advocated by the National Center for Academic Transformation (NCAT) is the emporium delivery method developed by Virginia Tech, combining technology and self-paced study. The emporium model replaces traditional classroom lectures with learner centered resources featuring "on-demand personalized assistance" and "interactive software" including "interactive tutorials, practice exercises, solutions to frequently asked questions, and online quizzes and tests" (NCAT, 2010). Students receive "individualized attention" combined with "immersive and intensive" activity in the subject while determining the speed at which they move through the material and the most appropriate learning materials to suit their needs. The emporium model relies on a different staffing model to meet the students' needs, including teaching assistants, faculty, peer tutors, and others who can direct students to resources that can best help them. A variation of the emporium model includes the modular approach where coursework is broken into smaller sections (modules). Here, the degree of individualization is increased as the course allows students to customize their learning experience to their needs based on their strengths and weakness (NCAT, 2011a). A further variation includes material being competency-based, where students may not progress to the next module until they have met some threshold of performance in the existing module (Twigg, 2011).

In a review of studies of this strategy, Bonham and Boylan note their effectiveness: "For example, Foothills College in California has implemented a program titled Math My Way. This program focused on intensity of instruction (additional time on task and an emphasis on mastery) while utilizing self-paced delivery and technology….Results reveal a 20% higher success rate in college-level mathematics for program completers" (2012, p. 3). Similar programs are in place at Cleveland State Technical College and Jackson State College, both in Tennessee. These redesigns have targeted "those with high withdrawal/failure rates, those drawing from students with inconsistent preparation…, or those from which students have difficulty in subsequent classes" (Bonham & Boylan, 2012, p. 4).[2] The emporium delivery is one of several similar approaches that "are supported by research or have been identified as promising practices in developmental mathematics" (Bonham & Boylan, 2012, p. 4). In general, these approaches use technology "where it is most appropriate, on homework, quizzes, and

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[2] It should be noted that the emporium model used at Virginia Tech and the University of Alabama is for non-developmental mathematics classes.

exams, for example. Tutorials are delivered by computer-based instruction supplemented by small-group instruction and test reviews" (Bonham and Boylan, 2012, p. 4). Bonham and Boylan identify three advantages to this approach: 1) It "fosters greater student involvement with the material as well as with each other;" 2) "it encourages the use of multiple approaches to teaching developmental mathematics;" 3) "[s]tudents actually learn mathematics by doing mathematics rather than spending time listening to someone talk about doing math" (2012, p.4). Statistical support for the success rates of technology-driven developmental mathematics classes in contrast to traditional mathematics classes can be found in self-assessment studies conducted by Middle Tennessee State University (Lucas & McCormick, 2007), BMCC (Apfaltrer & Zyman, 2008), and University of Detroit Mercy (n.d.).

In 2009, NCAT coordinated a three-year program in which thirty-two colleges and universities redesigned their developmental mathematics curricula based upon what NCAT finds to be effective in what it calls the "emporium method" of modularized mastery-based mathematics instruction (Twigg, 2013). Among the participants in this program, called *Changing the Equation* (CTE), was Northwest-Shoals Community College, whose Modular Mathematics program serves as a model for LSU Eunice's proposed Modular Mathematics program, **Path 2 Math Success.** Carol A. Twigg's paper, "Improving Learning and Reducing Costs: Project Outcomes from *Changing the Equation*," reports on the outcomes of the thirty-two institutions who "followed our [NCAT's] advice" on curricular redesign of developmental mathematics to a modular, mastery-based format (Twigg, 2013). NCAT guaranteed that such institutions "would improve student learning, increase completion of the developmental mathematics sequences, produce students well-prepared to tackle college-level mathematics and reduce instructional costs." Twigg then confidently asserts, "And this is exactly what happened."

Of the thirty-two institutions that followed NCAT's advice, 83% of their eighty-six redesigned mathematics courses showed "significant improvement" in student learning, and only 1% showed "decreased learning, but the difference was not significant" when "courses were measured by comparing common final exam scores, common exam items and/or gains on pre- and post-tests" between the traditional and redesigned sections of courses (Twigg, 2013). The means on common items from examinations at Northwest-Shoals Community College jumped "from 73% to 82% in Basic Mathematics, 70% to 79% in Elementary Algebra, and 64% to 79% in Intermediate Algebra" (Twigg). In terms of course completion rates, we may be rather surprised by the numbers, including that only "20 courses (23%): had higher completion rates, 6 of which were significantly higher," but "36 courses (42%): had lower completion rates, 21 of which were significantly lower" (Twigg). Although these completion rates may seem to bode ill

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for course redesign, Twigg states, "NCAT has discovered a variety of reasons why course-by-course completion comparisons are not a true measure of the success or lack of success of the program." Among these reasons are prior grade inflations, the mastery learning requirement in the course redesign, and more difficult redesigned courses. Twigg argues that comparing course completions requires measuring the percentage of students completing the same amount of material in the same amount of time, but that course redesign actually collapsed the number of courses. Furthermore, when the "making progress" (MP) grade—which means that a student was making significant progress toward successfully completing the class and is allowed to continue into the next semester—is factored into the course completion numbers, the picture looks far better:

- 37 courses (43%): had higher completion rates, 21 of which were significantly higher;
- 4 courses (5%): showed no significant difference in completion rates;
- 9 courses (10%): had lower completion rates, 6 of which were significantly lower;
- 12 courses (14%): did not award an MP grade and did not do a hypothetical calculation;
- 1 course (1%): insufficient data were collected to make a comparison;
- 23 courses (27%): completion could not be calculated due to collapse of multiple courses into one (Twigg, 2013).

As far as preparation to successfully complete college-level mathematics classes goes, Twigg (2013) admits that the CTE program did not have sufficient time to collect that data, but that some individual participating institutions did collect preliminary data. For example, at Northwest-Shoals Community College, "the percentage of developmental mathematics students successfully completing a college-level mathematics course increased from 42% before the redesign to 76% after the redesign in 2011" (NCAT, 2011b). At Pearl River Community College, "[c]ompletion rates in College Algebra went from 59% prior to the redesign to 76% in the spring 2011 pilot and 67% during the fall 2011 full implementation" (Twigg).

Finally, in regard to cost saving for a college or university, Twigg states, "All but one of the 32 CTE completed projects reduced their costs." The average reduction in cost per student was 19%, and these cost-savings were realized primarily through increasing the size of sections, and increasing the number of sections that counted toward faculty workload without actually increasing that workload "because of the elimination of repetitive tasks such as hand-grading of homework, quizzes, and exams." Twigg notes, however, that due to various reasons, "17 of the 32 institutions failed to fully carry out their cost reduction plans, although all but one of them did produce some savings." Further complicating the cost-savings equation to schools,

during the LSU Eunice team's visit to Northwest-Shoals Community College, LSU Eunice was advised not to rely on cost-savings and that LSU Eunice should instead expect the program to be revenue-neutral.

Students, however, can definitely expect to save money. In the context of the CTE program, Twigg (2013) notes the various ways in which students have saved money, including saving on tuition dollars by taking more than one class in a semester, participating in the program which has reduced the required number of credits, and having their life events accommodated in such a way that when a personal crisis has passed, they can pick up from where they left off, rather than have to drop a class and then start all over from the beginning.

It should be noted that so far student "success" in Modular Mathematics has been measured mostly indirectly by the literature in terms of passing grades in developmental and sometimes subsequent mathematics courses. For example, the Northwest-Shoals Quality Enhancement Plan, *Strengthening Mathematical Foundations Through Innovative Teaching,* defines success in a class as the attainment of a grade of C or better and notes that only 23% of students starting the course of study in the lower level of the developmental courses will earn a grade of C in the first college-level mathematics course, and it defines persistence as progressing from one semester to the next or success throughout the whole mathematics sequence, rather than directly in terms of student learning outcomes (Northwest-Shoals Community College, 2008).

Direct measurements usually take place within the context of comparisons on performance on final exams or on some specifically-chosen questions on final exams. Therefore, success rate measurements are difficult to measure across institutions since, under the new emporium and modularized delivery model, different institutions determine "success" to encompass different percentages for passing, ranging from 75% to 90% (Twigg, 2013). Further, success is also difficult to track across institutions because different institutions have different numbers of courses that constitute developmental and general education mathematics (NCAT, 2011c). Despite the problem of measuring "success" uniformly among all institutions, institutions reporting to NCAT on the success rates in the redesigned courses increased on average 43% for college-level mathematics courses and 51% for developmental mathematics courses (NCAT, 2009).

Organizing for Success

The Quality Enhancement Plan for LSU Eunice was developed through an inclusive and collaborative process. The implementation of the *Path 2 Math Success* program will also follow a similar broad-based participation of the campus community. The following illustrates groups and individuals who are major players in the design and implementation of the program. An organizational chart specific to the QEP is contained in Figure 1*.*

Figure 1
Partial organizational chart for those with direct responsibility for the QEP.[3]

LSU Eunice's organizational chart is contained in Appendix D.

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[3] This flowchart shows the lines of responsibilities for those directly involved with the QEP. All other departments shown in the LSU Eunice flowchart (Appendix D) remain the same.

Chancellor

The Chancellor is an existing position reporting to the President of the LSU System. He is the CEO of LSU Eunice and will oversee the design and implementation process of the QEP. He will delegate the responsibility of "leading the charge" for the design and implementation of the QEP within available resources to the Vice Chancellor for Academic Affairs.

Vice Chancellor for Academic Affairs

The Vice Chancellor for Academic Affairs is an existing position reporting to the Chancellor. The Vice Chancellor for Academic Affairs is chief academic officer for the University, having the authority of leading the charge for design and implementation of the QEP within available resources. In collaboration with the mathematics faculty, the Vice Chancellor for Academic Affairs will arrange for the renovation of the three rooms reserved for the implementation of *Path 2 Math Success*. The Vice Chancellor for Academic Affairs will also provide the leadership required to achieve the goals and objectives of the QEP, reporting them through the University's Institutional Effectiveness Web-based program.

Vice Chancellor for Business Affairs

The Vice Chancellor for Business Affairs is an existing position reporting to the Chancellor and serving as chief fiscal officer. She is responsible to the Chancellor for all fiscal and business affairs of the University. This position executes all regulations, policies, rules, directives, and memoranda issued by the Chancellor dealing with fiscal matters, along with the operation of the physical plant and purchasing.

Vice Chancellor for Student Affairs and Enrollment Services

The Vice Chancellor for Student Affairs and Enrollment Services is an existing position reporting to the Chancellor and serving as chief administrative officer in matters relating to students. She executes all regulations, policies, rules, directives, and memoranda issued by the Chancellor which deal with student personnel services, financial aid, recruiting, guidance and testing, scholarships, student and residential life, campus security, student activities, and enrollment management. Her office is instrumental in advising students of the *Path 2 Math Success* program at orientation.

Head of the Division of Sciences and Mathematics

The Head of the Division of Sciences and Mathematics is an existing position reporting to the Vice Chancellor for Academic Affairs. The Division Head, in collaboration with the Director of Developmental Education and Institutional Effectiveness, provides leadership for development and implementation of the QEP. He has the authority to assign mathematics faculty teaching schedules to ensure QEP courses are staffed with trained personnel. He also has the authority to evaluate faculty teaching in the program and will be evaluating the professional development of each faculty member.

Director of Developmental Education and Institutional Effectiveness

The Director of Developmental Education and Institutional Effectiveness is an existing position reporting to the Vice Chancellor for Academic Affairs. Primarily responsible for the Pathways to Success Program, the Director of Developmental Education and Institutional Effectiveness will act as the Principal Investigator for the capital aspects of the project, working with the engineers and the Director of the Physical Plant to keep construction on schedule. He will also work collaboratively with the Head of the Division of Sciences and Mathematics to lead the implementation of the QEP. He is responsible for keeping the laboratory and two classrooms in operational condition for the general student population. ACT's COMPASS Placement Assessment that is used to place new students in developmental and general education mathematics is also part of his responsibilities. Finally, in his role as Director of Institutional Effectiveness, he has dual reporting to the Chancellor and to the Vice Chancellor for Academic Affairs and will work collaboratively with the Head of the Division of Sciences and Mathematics, the Coordinator of Mathematics, and the Coordinator of the QEP to obtain and analyze data related to the QEP.

Coordinator of the Quality Enhancement Plan

The Coordinator of the QEP is a new position occupying an existing faculty line reporting to the Head of the Division of Sciences and Mathematics and is responsible for the day-to-day operation of the QEP and the ***Path 2 Math Success*** program, including programming, security, sequencing of modules, access to faculty teaching in the program, and the actual implementation of the program. The Coordinator will also be responsible for course content and offerings in collaboration with the Coordinator of Mathematics. The Coordinator of the QEP will be responsible for the professional development of all faculty members teaching in the program and will report their progress to the Division Head of Sciences and Mathematics. In collaboration

with the Coordinator of Mathematics and the mathematics faculty, the Coordinator of the QEP will seek to provide students with a seamless transition from their developmental education to their general education mathematics courses. Finally, the Coordinator of the QEP will be responsible for providing the raw data to the Director of Developmental Education and Institutional Effectiveness for summarizing. The Coordinator of the QEP is a title given to a faculty member who is both interested in and capable of fulfilling the roles above. The Coordinator is given up to a three course release per semester to perform the duties and to assist with the operation of the mathematics laboratory. A preliminary job description is contained in Appendix E.

Coordinator of Mathematics

The Coordinator of Mathematics is an existing position reporting to the Head of the Division for Sciences and Mathematics and is responsible for coordinating the course content and offerings for all general education mathematics. She is also responsible for coordinating the course content for developmental mathematics in collaboration with the Coordinator of the QEP. The Coordinator of Mathematics also schedules the traditional face-to-face developmental education courses. Together, the two coordinators are responsible for meeting the needs of students as they progress from developmental mathematics to general education mathematics. The Coordinator is a title given to a faculty member interested in performing and fulfilling the duties for a stipend each year.

Mathematics Faculty

The mathematics faculty will provide leadership and the collaboration necessary for the course redesigns of two developmental courses. Beginning in spring 2013, they will receive training on course software. Beginning fall 2013, the faculty will receive training on teaching in the newly designed course delivery environment. A number of these mathematics faculty members will also serve as mentors to one another in course redesign in collaboration with the Coordinator of the QEP. The mathematics faculty will also provide input for both course and policy revisions as the QEP is implemented. Mathematics faculty will also decide if the first general education course should become modular once *Path 2 Math Success* is established.

Tutors and Student Assistants

Tutors and student assistants will be employed in the Mathematics Laboratory. The tutoring position is an existing position within the Pathways to Success program that will

become incorporated into the QEP in order to better serve students. The tutor position will be expanded during the implementation phase so that either one tutor will be hired full time or several tutors will be hired part time. The tutoring position(s) will report to the Head of the Division of Sciences and Mathematics. The tutoring position is responsible for directly assisting students with the mathematics content, passwords, and navigation of the software, and will receive professional development similar to the mathematics faculty. Tutors will not necessarily teach individual sections of the course. A preliminary job description as it relates to the QEP is contained in Appendix F.

Student assistants are student employees of the University and will be responsible for ensuring that developmental mathematics students sign in and out. They will also be responsible for the general condition of the laboratory, notifying the Director of Developmental Education and Institutional Effectiveness of any possible issues with the hardware or software. The student assistants will report to the Director of Developmental Education and Institutional Effectiveness.

Registrar

The Registrar is an existing position reporting to the Vice Chancellor for Academic Affairs, responsible for maintaining the accuracy of the schedule of classes. The Registrar is also responsible for registration, enforcement of pre-requisites set by the faculty, and the accuracy of student records. Finally, he is responsible for the University's academic calendar, catalog, and bulletin.

Director of Information Technology

The Director of Information Technology is an existing position reporting to the Chancellor, responsible for maintaining LSU Eunice's connection to the Internet. He is also responsible for network maintenance and security. New computers will be purchased, installed, and configured in collaboration with Information Technology.

Director of Student Support Services

The Director of Student Support Services is an existing position reporting to the Vice Chancellor for Academic Affairs, responsible for tutoring services for students who apply for and are accepted into this federally funded program. The Coordinator of Tutorial Services, who reports to the Director of Student Support Services, will work collaboratively with the Coordinator of the QEP to see that program students receive computer-based tutoring.

Modifications can be made for program students who have physical disabilities, vision or hearing impairments, and certain learning disabilities, such as dyslexia and Attention Deficit Disorder, within the scope of the grant.

Director of the Physical Plant

The Director of the Physical Plant is an existing position reporting to the Vice Chancellor for Business Affairs, responsible for the cleanliness and operational condition of the facilities. His primary responsibility for the QEP is to work collaboratively with the Director of Developmental Education and Institutional Effectiveness, the mathematics faculty, the engineers, and the contractors to complete the capital work on time and on budget.

Campus Faculty

The campus faculty will have opportunities to participate in professional development activities included in the QEP. For example, representatives from each major sector of the campus were selected to serve as representatives on the QEP committee. Because of these selections, all campus offices are involved in and aware of the goals and objectives of the QEP. In addition, professional development workshops will be scheduled so that all faculty know and understand the *Path 2 Math Success* program and how it might affect their instructional methods.[4]

Administrators of Other Departments and Their Staff

Other departments will provide any necessary support to aid in the success of the QEP. These additional departments include, but are not limited to, Human Resources, Public Relations, the Library, and other academic divisions at the University. For example, Public Relations supervises all aspects of the University marketing and publications. Public service announcements, banners, information cards, and stickers related to the QEP were designed by Public Relations. In addition, the Library is permitting the QEP to use one of its learning labs during initial implementation in fall 2013. It is also anticipated that many students will use the Library Information Commons to complete their work. Other academic divisions support the QEP through promoting it at orientation and scheduling students for the sections.

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[4] Personnel at NW-SCC noted that the retesting for their computer-based mathematics became somewhat of an issue in that students expected all subjects to retest. The retesting policy applies only to the Modular Mathematics program at both institutions.

Students

Students who are enrolled in Math 0001 and Math 0002 make up more than 27% of the student population in any given fall or spring semester. These students will be the primary beneficiaries of the ***Path 2 Math Success*** program. All class members will provide feedback regarding the QEP through surveys and other forms of assessment.

Design, Development, and Implementation of the Modular Mathematics

Setting the Stage for the QEP

The broad involvement of the campus community demonstrated by the many groups above working collaboratively to design and implement the QEP was apparent even prior to the QEP Committee being formed. For example, before the committee's formation, the Office of Developmental Education, the Grants Office, the Vice Chancellor for Academic Affairs, and the Director of the Physical Plant had already secured a computer laboratory for a separate project. Cooperatively, they wrote a grant and secured a second room to use as the classroom for the Modular Mathematics pilot as the mathematics faculty announced their intentions. Once the site visit to NW-SCC took place, the classrooms underwent a redesign to the collaborative learning model even though the grant had already been submitted.

Once the QEP Committee was formed with members from the campus community and the choice of topic was announced, the QEP Committee quickly set out to assist the mathematics faculty in narrowing and defining the topic and naming the QEP. The QEP Committee divided itself into seven subcommittees to accomplish this task and simultaneously work on the various part of the actual document. The subcommittees were

- Student learning outcomes
- Assessment
- Review of literature
- Organizing for success
- Implementation timeline
- Identification of actions
- Resources

In addition, the Chair of the QEP Committee contacted the Office of Public Relations to discuss creating a logo and a marketing plan for the QEP. Each subcommittee had specific duties along with deadlines for presentation of their section of the QEP document during spring 2013.

Other critical tasks were being completed at the same time. The first was that the QEP Chair, the Accreditation Liaison, and the Vice Chancellor for Academic Affairs confirmed that the problem and solution were within the scope of LSU Eunice's mission. First, they examined the 2012-2013 Institutional Effectiveness documentation for the Office of Developmental Education to determine what goals and objectives applied to developmental mathematics. They found the following for Pathways to Success students.

Goal 1: In working to maintain an effective developmental education program, Pathways to Success will provide students the necessary support for the successful completion of their developmental coursework. This goal is linked to institutional goals 4, 5, 7, and 8. It is linked to strategic goals 1.1 and 2.4.

Objective 1.2: Pathways to Success students will successfully complete their developmental coursework, gaining competencies in computational and elementary algebra skills (MATH 0001) necessary to begin MATH 0002.

Objective 1.3: Pathways to Success students will successfully complete their developmental coursework, gaining competencies in the algebra and coordinate geometry (MATH 0002) necessary to be successful in their first general education mathematics course.

Goal 2: General Education: Pathways to Success will provide students the necessary support for the successful completion of their first general education courses in English, mathematics, and social science. This goal is linked to institutional goals 4, 5, 7, and 8. It is linked to strategic goals 2.4 and 2.5.

Objective 2.2: Pathways to Success students will successfully complete their first general education courses at rates that approximate the averages established by the National Center for Developmental Education for general education mathematics courses (MATH 1021) after the successful completion of MATH 0002.

The goals and objectives for the Division of Sciences and Mathematics were also examined for developmental mathematics. They found the following for all students.

Goal 2: General Education: Competency in sciences and mathematics. This goal is linked to institutional goals 1, 2, and 3. It is linked to strategic goals 1.1 and 2.2.

Objective 2.1: Upon completion of math core requirements, transfer and associate degree students will demonstrate competency in mathematics as measured by the student learning outcomes and CAAP exam in MATH 1021.

Goal 3: Course Completion. This goal is linked to institutional goals 4 and 5. It is linked to strategic goals 1.1 and 2.2.

Objective 3.1: Students enrolled in developmental mathematics courses will successfully complete their developmental coursework, gaining competencies in computational and elementary algebra skills (MATH 0001) and algebra and coordinate geometry (MATH 0002) necessary to be successful in their first general education mathematics course.

Goal 7: Sequential Courses. This goal is linked to institutional goals 2, 4, and 5. It is linked to strategic goals 1.1 and 2.2.

Objective 7.1: At least 60% of the students completing a developmental mathematics course will receive a passing grade in their first college-level course in mathematics.

The goals of the QEP—increased success in developmental mathematics and general education mathematics, professional development for faculty, increased retention, and decreased time spent in developmental mathematics—are within the scope of the institutional mission, institutional goals, and strategic goals as listed below. The institutional goals supported by the QEP are

1. Students complete associate degree or certificate programs prepared to enter the workforce.
2. Students complete the first two or more years of baccalaureate study prepared to transfer to four-year institutions to complete their degrees.
3. Students fulfill general education and continuing education needs through a variety of educational offerings at various teaching sites and times.
4. Students who need developmental instruction acquire the knowledge and skills to prepare them for collegiate study.
5. Students receive support and assistance in reaching academic, personal, career, and employment goals.
6. Students find facilities and resources adequate in classrooms, laboratories, the library, and recreational areas.
7. Citizens of LSU Eunice's service area find educational opportunities to meet changing employment needs.

Second, the Strategic Goals that are supported by the QEP are

Objective 1.1: Increase fall 14th class day headcount enrollment at LSU Eunice by 2% from the baseline level of 3,332 in fall 2009 to 3,400 by fall 2014.
Objective 2.2: Increase the percentage of first-time in college, full-time, associate degree-seeking students retained to the second fall at the same institution of initial enrollment by 3.7 percentage points from the fall 2008 cohort (to fall 2009) baseline level of 50.3% to 54% by fall 2014 (retention of fall 2013 cohort).
Objective 2.4: Increase the Graduation Rate (defined and reported in the National Center of Education Statistics (NCES) Graduation Rate Survey (GRS)) – baseline year rate for Two-Year institution (fall 2005 cohort) of 8 % to 15 % by 2014-15 (fall 2010 cohort).
Objective 2.5: Increase the total number of completers for all applicable award levels in a given academic year from the baseline year number of 256 in 2008-09 academic year to 279 in academic year 2013-14. Students may only be counted once per award level.

Next, the QEP Chair and Accreditation Liaison sought the endorsement of the various constituencies on campus while seeking input. This included the faculty, staff, and students. In addition, four QEP Committee members and the Accreditation Liaison volunteered to assemble the pieces generated by the various groups during the summer of 2013.

Finally, placement in general education mathematics is set by the Louisiana Board of Regents. Students with a 19 mathematics score on the ACT assessment would continue to be placed into general education mathematics. New students with a mathematics score of 18 or less on the ACT test would continue to be placed into developmental mathematics.[5] New students with ACT mathematics scores that placed them into developmental mathematics have the option to take the COMPASS mathematics assessment, allowing students to test into MATH 0002 or general education mathematics. Cut-scores for placement in MATH 0001, MATH 0002, and general education mathematics were generated using ACT placement recommendations. The current practice for placement and the use of ACT scores and COMPASS scores will be maintained while the QEP is implemented. Table 8 details the preliminary work completed as the topic for the QEP was decided.

Table 8
Tasks and timeline for setting the stage.

Time	Activity	Result	Responsible
June – September 2012	Design lab space and develop capital budget for the proposed space	One room acquired, grant written for capital needs	Vice Chancellor for Academic Affairs (VCAA), Vice Chancellor for Business Affairs (VCBA), Director of Grants and Development, Director of Developmental Education and Institutional Effectiveness (DDEIE), Director of the Physical Plant

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[5] Students with a 17 or 18 mathematics score on the ACT have the option of participating in a Board of Regents sponsored program where the developmental course and general education course are taught at the same time in a co-requisite fashion.

November 2012	Faculty consider information from NW-SCC about a new delivery method for developmental mathematics	Mathematics faculty decide to pilot the new method in fall 2013 with one section	VCAA, mathematics faculty, DDEIE
November 2012 – January 2013	Redesign space to assist with Modular Mathematics	Two rooms acquired, grant submitted	VCAA, VCBA, Director of Grants and Development, DDEIE, Director of the Physical Plant
January 2013	Identified problems lead to choice of topic	Choice of QEP topic finalized and announced	QEP Committee
January 2013	Committee is divided into subcommittees	Creation of seven subcommittees	QEP Committee
January 2013	Determine if the QEP is within the scope of the mission of LSU Eunice	Verified for both strategic and institutional goals	VCAA, Accreditation Liaison, QEP Chair
February 2013	Presentation by the Student Learning Outcome (SLO) subcommittee	SLO's refined to fit QEP	QEP Committee and mathematics faculty
February 2013	Student Government Association (SGA) presented with QEP topic	SGA endorsed topic	QEP Chair and SGA
March 2013	Presentation by the Assessment subcommittee	Assessment procedures revised and accepted	QEP Committee and mathematics faculty
March 2013	Discussion of QEP name	***Path 2 Math Success*** adopted as QEP title	QEP Committee and mathematics faculty
March 2013	Presentation by the Review of Literature subcommittee	Draft placed on QEP drive for review	QEP Committee
April 2013	Faculty Senate presented with QEP	QEP Program endorsed with unanimous vote	QEP Chair
April 2013	Capital grant from the Board of Regents awarded. Additional space needed	Executed contracts, a third classroom secured	VCAA, VCBA, Director of Grants and Development, DDEIE, Director of the Physical Plant
April 2013	Presentation by the Organizing for Success subcommittee	Draft placed on QEP drive for review	QEP Committee
April 2013	Presentation by the Implementation Timeline subcommittee	Timeline was placed on QEP drive; Committee revised timeline during weekly meeting	QEP Committee
April/May 2013	Presentation by the Identification of Actions subcommittee	Draft placed on QEP drive for review	QEP Committee and mathematics faculty

May 2013	QEP presented to Faculty Council	QEP Program endorsed with unanimous vote	QEP Chair
May 2013	Presentation by the Resources subcommittee	Draft placed on QEP drive for review	QEP Committee
June – August 2013	Four members of QEP Committee volunteer to compile final document	Members meet to begin compilation of document	QEP Committee
July 2013	All other components of QEP document compiled	Final draft document of QEP assembled	QEP Committee
July 2013	Final document revised	QEP Document Submitted to SACSCOC Leadership Team	QEP Committee and mathematics faculty

Design and Development of Course Content and Procedures

Immediately upon deciding to commit to a pilot project, the mathematics faculty began discussing content and curricular issues. This included delivery method, design of the modules, pacing guide, choice of the book and software, and course policies. Each was designed by the mathematics faculty with input from the Head of the Division of Sciences and Mathematics. In addition, the faculty felt that both the MATH 0001 and MATH 0002 courses should be ready for fall 2013 to accommodate a student who completes MATH 0001 and wants to proceed into MATH 0002. Specific redesign elements for the new program are discussed throughout each of the elements listed below.

One of the first decisions made early on was that the Modular Mathematics program at LSU Eunice would not completely follow the traditional Mathematics Emporium model. Instead, the program would follow NW-SCC's model, incorporating one principle of course redesign. Both courses were redesigned and standardized so that all sections would focus on material agreed upon by the mathematics faculty. The Coordinator of the QEP, a new title for an existing mathematics faculty position, would oversee the developmental mathematics sections being taught using the Modular Mathematics, including the programming and security. Individual faculty members may add material to their own sections; however, the basic program and how students advance through it will remain the same for all sections.

In addition, mathematics faculty and administration decided to leave both MATH 0001 and MATH 0002 as three credit hour courses during the initial phases of implementation. This was done so that the results of the Modular Mathematics could be compared to the results of the traditional lecture format over a period of time, allowing the comparison of "apples to

apples." However, institutional data generated from the assessment plan will be used to determine if the Modular Mathematics becomes two 4 credit hour courses or three 3 credit hour courses in order to further the original goals to increase success and decrease time in developmental education. A discussion of resources will take place if and when the courses are changed to two 4 credit hour or three 3 credit hour courses.

The courses will be computer-based and competency-based with required attendance, which differs from the openness of the Mathematics Emporium. This was done to provide structure to students so that a faculty member would be in the room with students at least once a week during class time. This would also allow an assigned faculty member to continually engage students during the assigned class time. Further, the faculty member could monitor attendance, check notebooks, meet with students face-to-face, and seek out students not completing the assigned work or not keeping up with the pacing guide.

Student Attendance

Required attendance in class is identified as the second principle of redesign. Students must spend one class period in the assigned classroom at the assigned time with the faculty member, with the other half of class time in the mathematics lab. Students, of course, can opt to attend class both periods during the week if there are computers available for the students to use. Depending on enrollment during the initial phases, class sizes will probably be small enough for students to attend both days.

However, under full implementation, the plan is to set class limits at 30 to 35, with half of the students in a section attending once per week and the other half attending on the alternate class period. The balance of the time would be spent in the mathematics laboratory. Students may also spend time in the Library Information Commons if they wish; however, attendance will not be taken at that location. Regardless of the class capacity, the attendance requirement allows faculty members to monitor student time on task and progress closer than they ever have in the past, noting which students are keeping up with the pacing guide and which are not. Faculty members will also monitor which students are skipping modules by successfully obtaining the minimum score on the module pretest. The goal is to monitor student time on task and ensure that students are spending an adequate amount of time on the subject to increase student success.

Time on task will be monitored through MyMathLab. In addition, students will use a swipe card device to swipe their student ID card when they enter the lab to log in and when they

leave to log out. Attendance software will monitor student time in the mathematics lab by student ID number. Student reports will be sent to faculty once per week.

Course Design and Layout

After deciding on the topic, the faculty began the task of choosing books and examining software to be used for the pilot. Several electronic mail conversations took place with John Squires, who was instrumental in a similar project at Cleveland State Community College (Tennessee). Timing seemed to be on the mathematics faculty's side when he noted that his new book combining Pre-Algebra (MATH 0001) and Introduction to Algebra (MATH 0002), specifically tied to a computer-based format, would be available in fall 2013. The faculty was split on whether to use the existing book or change to Squires' book, both of which used the MyMathLab web-based platform. They chose to examine the Squires book and then ultimately decided to adopt it for the Modular Mathematics program since it was specifically geared toward the Modular Mathematics format, whereas the book currently used in the traditional delivery method was not.

The very design of the courses themselves provides another principle of course redesign. The MyMathLab program contains lecture videos, homework, and various tutorials which can be accessed 24/7. The student will begin a module with a pretest. If successful at meeting the minimum score, the student may opt out of that particular module, with the pretest score becoming the grade for that module. The pretest is typical on all modules, and students may find themselves opting out of a number of modules. Students who do not meet the minimum score on the pretest will then begin viewing video lectures and completing homework. Some students will quickly complete the homework, while others may need additional work to meet the minimum score. Once the minimum homework score is reached, then the student takes a quiz on two or three sections in the book.

Both courses are customizable and individualized to students' needs based on how they respond to the questions. This is opposed to the traditional method of instruction where all students are at the same place in the content at the same time. Students taking Modular Mathematics, however, cannot proceed to the next module without first meeting the minimum scores. Students are permitted a total of three attempts on module quizzes and one attempt at the midterm and final exam. Modular Mathematics students will be able to complete one course in a semester and begin the second one the same semester, adding to the level of customization. Students may also be able to complete the entire developmental mathematics sequence in one semester, reducing attrition points and decreasing the time spent in

developmental mathematics. Finally, students who do not finish the first course or who start the second and do not finish it may begin where they left off if they take the course in the next regular semester.

Another redesign principle involves active learning, requiring that students participate in order to progress through the course. Essentially, within reason, students themselves set the pace at which they complete course material since they must engage the subject matter by watching videos, taking notes, working homework problems, seeking tutorial assistance if necessary, and taking module quizzes. No longer will students be able to sit passively in the back of the room since each room is designed in cluster, where six computer stations are at one table, allowing students to work collaboratively if they wish. The cluster design allows the faculty member or tutor to circulate around the room with ease since desks are not in a row. The combination of active learning and the individualized nature of both developmental courses allows students to progress through the courses at their own pace within the recommendation of the pacing guide.

Yet another redesign feature of Modular Mathematics is that the program was set up so that students would receive frequent and immediate feedback. Students have a variety of ways to seek help in the software itself, such as "show me an example" and "help me solve this." In addition, the program fosters an environment of "practice until you get it right" since homework must meet a minimum score prior to a student taking a quiz. Each quiz is password-protected with the passwords rotating every week, necessitating the student taking quizzes in the mathematics laboratory or in the classroom. Figure 2 provides a preliminary schematic diagram for the pilot course to be introduced in fall 2013.

Figure 2
Preliminary schematic diagram for Modular Mathematics at LSU Eunice.

Modular Math
Flowchart
April 29, 2013

Demographic Information

Student attends a mandatory course orientation and completes the syllabus quiz on first day of class.

Score < 100% → Stop

Score = 100%

Student takes a pretest for a course module (approx. 10 questions).

Score ≥ 80%   Score < 80%

Student watches videos and completes 10 – 15 homework questions per section. Each module has two to three sections of homework.
Student also completes homework.

HW < 80% → Computer intervention.

HW ≥ 80%

First attempt at module quiz.

Quiz ≥ 70%   Quiz < 70%

1st Attempt

Student completes additional computer-generated HW problems on material not mastered. Instructor intervention if necessary.

HW ≥ 85%   HW < 85%

Student may attempt the quiz a second time.

Instructor intervention to diagnose issue; student referred to tutoring.

2nd Attempt

Quiz ≥ 75%   Quiz < 75%

Increased instructor intervention to diagnose issue. Student completes additional assignments on material not mastered.

The student's grade is the average of the three quizzes.

HW ≥ 85%   HW < 85%

Student attempts quiz a third time.

Increased instructor intervention to assist student; student referred to tutoring.

3rd Attempt

Quiz ≥ 75%   Quiz < 75%

Student moves to next module pretest.

Student given opportunity to restart module with instructor permission.

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Additional Student Assistance

Additional assistance can come from both the faculty member assigned to the section and tutors who will be provided in the lab. Both will provide students with assistance with technical questions on the program itself and the subject matter. Both will also have the ability to assist with passwords for quizzes. Student workers will also assist with the routine matters such as passwords for quizzes, reminding students to swipe their student ID for attendance purposes, and assisting faculty members in obtaining their attendance records. The tutor, faculty member, and student workers are meant to be extensions of the individualized assistance provided by MyMathLab so the student may progress through difficult material as quickly as possible. Also, they will encourage students, maintaining frequent communication with them so that students feel comfortable using the new method of delivery.

Individual students may be assigned to tutoring in either the lab or in Student Support Services. In either case, students will receive assistance with problems found to be difficult. Student Support Services will also provide an alternate to the mathematics lab to students enrolled in their program. Students will sign in and sign out, with Student Support Services sending a list of students who complete work in the lab and the corresponding amount of time. Student Support Services will also provide services for students falling under ADA with additional time on tests, even though the tests are not timed. The Tutorial Center Administrator for Student Support Services sat on the QEP Committee for continuity purposes.

Professional Development for Faculty and Tutors working in Modular Mathematics

The administration, QEP Committee, and faculty at LSU Eunice believe that professional development for all instructors must take place prior to faculty members' teaching any section of Modular Mathematics. The training process will start the semester before the faculty member is assigned to teach sections of Modular Mathematics and continue through the first semester of instruction. The Coordinator of the QEP will act as a mentor to faculty learning the new method. Prior to teaching the first Modular Mathematics course, faculty members will be asked to do the following to demonstrate knowledge of the research, best practices, and procedures for LSU Eunice's Modular Mathematics:

1. Observe a minimum of 5 hours of a Modular Mathematics class
2. Watch course content videos and complete homework for a couple of modules so the faculty member is acquainted with what the students are required to do, along with how the MyMathLab program functions

3. Read a compilation of documents regarding Modular Mathematics and developmental education, including
    a. Course syllabi and policy statements from an actual section
    b. LSU Eunice QEP *Path 2 Math Success*
        i. NW-SCC site visit report
        ii. LSU Eunice's Modular Mathematics flowchart
    c. Published paper by Fowler and Boylan (2010) dealing with the academic, nonacademic, and personal factors related to student success
    d. Redesigning Developmental and College Level Math: Six Principles of Successful Course Redesign (NCAT, 2010)
4. Attend workshops, conferences, or webinars as resources permit, and provide a written report of the sessions attended and what was learned.

Upon the conclusion of this phase, faculty members will be asked to respond to a series of questions in the Modular Mathematics Professional Development Training Part One (see Figure 3). The Coordinator of the QEP and faculty member will then discuss the answers to the questions. If the questions are answered satisfactorily according to research and practice, then the Coordinator of the QEP recommends the faculty member to teach in the Modular Mathematics program to the Division Head of Sciences and Mathematics. If the questions in Part One document are not answered satisfactorily, then the Coordinator of the QEP refers the faculty member to the Coordinator of Mathematics and Division Head for disposition, which may range from discussing the responses with the faculty member to denying the faculty member permission to teach Modular Mathematics. Faculty members will be given the opportunity to rewrite the Professional Development Part One document should they feel it necessary.

Figure 3

Preliminary questions for Professional Development Part One

Professional Development Part One

Directions: Please write a short response to the following questions pertaining to the literature review examined. Please type your responses.
1. What is a Mathematics Emporium? How does LSU Eunice's Modular Mathematics differ?
2. What are some of the pedagogical benefits of using Modular Mathematics versus face-to-face delivery methods?
3. Fowler and Boylan (2010) discuss the academic, nonacademic, and personal factors related to a developmental student's success. How do these factors affect student performance?
4. What is the instructor's role in the Modular Mathematics classroom?
5. What must a student make on a retest if they are unsuccessful with the first attempt?
6. Can the student take quizzes at home on their own time?
7. If a student passes the optional pretest with an 80%, are they required to do the homework associated with that test?

Faculty members may be conditionally approved or unconditionally approved to teach using Modular Mathematics. "Conditionally approved" means the faculty member may only teach one to two courses involving Modular Mathematics the first semester, while "unconditionally approved" means the faculty member may teach multiple sections using the method. Regardless of the type of approval, new faculty members will continue to be mentored by the Coordinator of the QEP during the first semester of teaching. Faculty members not demonstrating basic knowledge of the Modular Mathematics program and thus not approved by the Division Head will need to correct the situation to the Division Head's satisfaction prior to teaching in the program.

Once faculty members demonstrate basic knowledge of the new delivery method, they will be assigned courses to teach. During the first semester of instruction in the program, the Coordinator of the QEP will continue to monitor and assist new faculty members with course procedures. Specifically, the faculty member will

1. be observed by the Coordinator of the QEP (informal evaluation);

2. be observed by the Head of the Division of Sciences and Mathematics (formal evaluation);

3. be asked to keep a journal of the faculty member's work with Modular Mathematics using the questions in Figure 4 as a guide based on pedagogical, personal, and operational aspects; and

4. be evaluated by the students.

Upon the completion of the first semester of instruction in the Modular Mathematics program, the faculty member will be debriefed by the Coordinator of the QEP to determine areas for improvement of the program. The Coordinator of the QEP then makes a recommendation on whether or not the faculty member continues in the program.

Figure 4
Preliminary questions for Professional Development Part Two

Professional Development Part Two
Directions: Please write a short response to the following questions pertaining to your experience with the Modular Mathematics program. Please type your responses. 1.   Do you believe that this delivery method benefited students? 2.   Did you do anything different to help your students achieve their goals? 3.   Did you have any Modular Mathematics program issues during the semester? 4.   Should any of the minimum scores be changed? Why or why not? 5.   How can the program be improved?

Finally, although not an ideal situation, faculty members with little training may be needed to teach on an emergency basis at some point during implementation. In this case, the new faculty member will be mentored by the Coordinator of the QEP. The Coordinator of the QEP will give the orientation presentation to the students on the first day and will visit the classroom on a regular basis. The process will continue to be followed as outlined above. Table 9 summarizes the tasks and timeline associated with the design and development of the course content and procedures.

Table 9
Tasks and timeline for the design and development of the course content and procedures.

Time	Activity	Result	Responsible
August 2012	Faculty candidate proposed for Modular Mathematics	Faculty member selected to pilot program	Coordinator of Mathematics and Director of Developmental Education and Institutional Effectiveness (DDEIE)
October 2012	Site visit to NW-SCC in Muscle Shoals, Alabama	Report submitted to VCAA and Chancellor	CQEP and DDEIE
November 2012-December 2012	Book choice and software examined	Squires book chosen with the MyMathLab web-based platform	CQEP, Head of the Division of Sciences and Mathematics (HDSM), mathematics faculty, and DDEIE

December 2012	Design begins for Modular Mathematics	Skeletal structure for course is created	CQEP
January 2013	Mathematics faculty meet to discuss details of Modular Mathematics	Accepted by mathematics faculty	CQEP and mathematics faculty
February 2013	Mathematics faculty meets and discusses specifics of course (i.e. syllabus, schedule, minimum scores, number of retakes, and course policies, etc.)	Accepted by mathematics faculty	CQEP and mathematics faculty
April 2013	Course Policy Statement drafted for pilot year in Modular Mathematics	Accepted by mathematics faculty	CQEP and mathematics faculty
April 2013	New design for Modular Mathematics to be implemented in the fall semester presented to mathematics faculty	Appropriate changes made and program customized	CQEP and mathematics faculty
August 2013	Final program details discussed	Program ready to pilot for fall semester	CQEP and mathematics faculty

Path 2 Math Success Implementation

MATH 0001

It is necessary to discuss the historical enrollment in fall, spring, and summer for developmental mathematics prior to discussing the implementation of the QEP. For purposes of implementation, AY 2008-2009 through 2012-2013 were studied in order to have the most recent enrollment history for each course. First, MATH 0001 had a median enrollment of 524 with 20 sections for fall and 299 with 12 sections in spring (see Table 10). The QEP will be implemented beginning fall 2013, with one controlled section of MATH 0001 being offered to work out the "bugs." This will also allow time for capital improvements to take place in the Modular Mathematics classroom and laboratory.

Table 10
Number of sections and students enrolled in MATH 0001 prior to course redesign.

AY	Fall		Spring	
	n students	n sections	n students	n sections
2008-2009	456	17	285	11
2009-2010	530	20	347	13
2010-2011	527	24	342	12
2011-2012	524	25	299	14
2012-2013	422	19	202	11
Median	524	20	299	12

For spring 2014, three sections of Modular Mathematics are planned for MATH 0001, the sections being open to all who care to take them. Additional sections will be offered during the 2014-2015 AY, with full implementation scheduled for some time around fall 2017. In addition, capital improvements will take place in the second classroom during the 2014-2015 AY. The classroom will open in fall 2015. Using the median enrollment from AY 2008-2009 through 2012-2013, it is estimated that the number of sections for fall will decrease from 20 (see Table 10) to 18 with 30 students per section (see Table 11). Similarly, keeping enrollment constant at the median, the number of sections for spring may decrease from 12 (see Table 10) to 10, with 30 students per section (see Table 11). Modeling summer enrollment indicates that the two sections will be maintained for the 49 students.

Table 11
Projected number of sections for MATH 0001 based on historical enrollment.

No of Students per Section	Fall		Spring	
	median	n sections	median	n sections
30	524	17.5	299	10.0
35	524	15.0	299	8.5

MATH 0002

MATH 0002 will be treated in much the same manner; however, it will debut officially in spring 2014, with two sections being offered in the Modular Mathematics format. Beginning fall 2014, additional sections will be opened, with full implementation scheduled around spring 2016. MATH 0002 had a median enrollment of 231 with 10 sections in the fall and 353 with 13

sections in the spring over AY 2008-2009 through 2012-2013 (see Table 12). Again, using the median enrollment from AY 2008-2009 through 2012-2013, it is estimated that the number of sections for fall will decrease from 10 (see Table 12) to eight with 30 students per section (see Table 13). Similarly, keeping enrollment constant at the median, the number of sections for spring may decrease from 13 (see Table 12) to 12, with 30 students per section (see Table 13). Summer session typically has 70 students enrolled in MATH 0002. As a result, the number of sections is projected to be decreased from three to two.

Table 12
Number of sections and students enrolled in MATH 0002 prior to course redesign.

	Fall		Spring	
AY	n students	n sections	n students	n sections
2008-2009	214	11	327	13
2009-2010	257	10	353	13
2010-2011	261	10	377	13
2011-2012	231	10	362	15
2012-2013	226	10	308	13
Median	231	10	353	13

Table 13
Projected number of sections for MATH 0002 based on historical enrollment.

	Fall		Spring	
No of Students per Section	median	n sections	median	n sections
30	231	7.7	353	11.8
35	231	6.6	353	10.1

Total Number of Developmental Mathematics Sections Predicted

Using 30 students per section on the outset and holding enrollment constant at the median allowed the QEP Committee to determine the probable number of developmental mathematics sections that would need to be offered under full implementation. Models suggest that the total number of sections can be reduced from 30 to 25 during fall semester and from 25 to 21 during spring semester, anticipating a maximum of 30 students per section (see Table 14). This allows for the fact that the evening sections of MATH 0001 and MATH 0002 offered at 4:30 p.m. will be combined to one section in order to avoid cancelling low enrollment sections.

Table 14
Total number of developmental sections before and after redesign.[6]

Maximum Enrollment per Section	No of Sections	
	Fall	Spring
Prior to Redesign		
Varied	30	25
After Redesign		
30	25	21
35	21	18
Total number of students	755	652

Two additional calculations were made as well. The first was the number of class periods needed to accommodate the number of sections and students in Table 14. After modeling enrollment for 30 students per section and allowing for two courses being taught at the same time at 4:30 pm as shown in Table 14, the QEP Committee calculated the number of sections that could be taught in the two classrooms given the hours students typically attend. Students typically enroll in courses offered at 8:00 a.m. through 2:00 p.m. Monday, Wednesday, and Friday and 8:00 a.m. through 12:30 p.m. on Tuesday and Thursday, allowing a total of 12 time slots per room for a total of 24. However, Table 14 indicates that 25 classrooms are needed, so an alternate computer lab will be used for the additional section. While increasing the maximum number per section to 35 is an option, it is shown here for informational purposes only. LSU Eunice does not intend to set the limit to 35 during the first phases of implementation.

The second calculation was the number of computers based on NCAT (2010) standards. According to NCAT, the number of computers for 800 students with testing is 73 if the lab is open approximately 60 hours per week. LSU Eunice plans on the lab being open approximately 46 hours per week. With 755 students, a total of 38 computers will be located in the lab with 25 in each of the two classrooms, totaling 88 computers in all. In addition, students may use computers in the Library Information Commons area if they desire. Based on NCAT (2010) standards, the number of computers appears to be adequate with a maximum of 755 students in a given semester.

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[6] The total number of sections for each course includes approximately six sections per academic year being taught in a traditional face-to-face method.

It is important to note that the numbers modeled in Table 10 through Table 14 reflect the students at the LSU Eunice site only. It is possible that approximately six sections of developmental mathematics will be offered using the traditional face-to-face method. While committed to Modular Mathematics, LSU Eunice administrators would like to keep their options open, allowing students a choice between the two methods. In addition, dual credit sites will have the option of using either of the two methods; however, LSU Eunice will not provide capital costs for Modular Mathematics sections offered in the local high schools. Finally, Modular Mathematics will not be implemented at the LSU Alexandria site, where LSU Eunice offers developmental courses for students who are inadmissible to LSU Alexandria due to current state law. LSU Eunice has been informed by the Louisiana Board of Regents of its intention to form a community college in the region within the next couple of years, thus ending LSU Eunice's role at LSU Alexandria. As a result, the traditional face-to-face method will be used at the LSU Alexandria site until the new community college takes over the developmental courses. Table 15 summarizes the implementation of the Modular Mathematics program.

Table 15
Tasks and timeline for the implementation.

Time	Activity	Result	Responsible
March 2013	Course schedule drafted for pilot year in Modular Mathematics	Accepted by mathematics faculty	Head of the Division of Sciences and Mathematics (HDSM) and the Director of Developmental Education and Institutional Effectiveness (DDEIE)
April 2013	Enrollment in pilot course begins	Class roster generated	LSU Eunice
May - July 2013	Enrollment in pilot course continues	Class roster generated	LSU Eunice
August 2013	Modular Mathematics implementation – one controlled section of MATH 0001	Course is offered	CQEP, HDSM, and DDEIE
August 2013 – December 2013	Capital improvements for lab and one classroom under way	Lab and classroom open spring 2013	DDEIE and Director of the Physical Facilities
September 2013	Perform a preliminary evaluation as to number of sections to offer in spring 2014	Appropriate number of sections offered based on experience from fall 2013	CQEP, HDSM, QEP Committee, mathematics faculty, and DDEIE

November 2013	SACSCOC On-Site Visit	Present and hear recommendations regarding the QEP	LSU Eunice
December 2013	Data evaluation; hold meeting on results	Consider results of first semester in Modular Mathematics; revise as necessary	CQEP, HDSM, QEP Committee, mathematics faculty, and DDEIE
February 2014	Discuss the number of sections that should be offered in summer and fall 2014	Appropriate number of sections offered based on student success and mathematics faculty's experience with the program	CQEP, HDSM, mathematics faculty, and DDEIE
March 2014	Create summer and fall schedules	Appropriate number of sections offered using Modular Mathematics	CQEP, HDSM, mathematics faculty, and DDEIE
May 2014 – August 2014 (typical thereafter)	Summarize first-year data	Report in Institutional Effectiveness	CQEP, HDSM, and DDEIE
June 2014 (typical thereafter)	Revise as necessary and offer additional sections of Modular Mathematics	Courses are offered	CQEP, HDSM, mathematics faculty, and DDEIE

Fiscal and Physical Capability for the QEP

The resources necessary to fulfill Louisiana State University Eunice's commitment to the QEP and Modular Developmental Mathematics Program is $1.59 million, with over $1.41 million coming from university funds and $116,250 coming from a Board of Regents' grant that is currently underway. Included in this budget are capital improvements to three classrooms to be used for the Modular Mathematics program. The first is a laboratory that will be staffed by a full-time tutor (or two part-time tutors) in Manuel Hall, Room 203. This laboratory will have five desks containing six computer stations each in a hexagon style configuration. An additional eight computers will be placed in study carrels along the back wall to be used for more privacy when working on coursework or testing. The second room to be utilized is a classroom in Manuel Hall, Room 204. This room will be a Modular Mathematics classroom with 25 student computer stations. Four desks with six computers stations each will be installed, with one computer along the back wall in a study carrel for students who want more privacy when working on coursework or testing. Both of the rooms will undergo remodeling and will be open to students for the spring 2014 semester.

The Modular Mathematics program will be implemented over three years. The first classroom will handle the initial phases from spring of 2014 through spring of 2015, with the third classroom in Manuel Hall, Room 211, opening in the fall 2015 semester as the program is fully implemented. The following resources can be found in the QEP table of resources (see Table 16). The budget narrative is now broken into each major section to detail the resources required.

Administrators' Salaries and Benefits

Two existing 12-month administrators are charged with the implementation and assessment of the QEP. The Head of Division of Sciences and Mathematics will dedicate approximately 10% of his time to the QEP, while the Director of Developmental Education and Institutional Effectiveness will dedicate approximately 25% of his time. Taking 10% and 25% respectively yields a salary of $23,875 with benefits of $11,221 calculated at 47% of salary. The salary for the second through fifth years of the program includes a 3% salary increase using 2013-14 as the base year.

Coordinator of the Quality Enhancement Plan Salary and Benefits

The position will initially be temporary as the salary will be $8,100 plus $3,772 in fringe benefits beginning in fiscal year 2013-2014 for the initial design and implementation of the Modular Mathematics program. In 2014-2015, the position will be a full-time position occupying an existing mathematics faculty line with a salary of $37,000 plus $17,390 (47%) in fringe benefits. The salary for the third through the fifth years of the program includes a 3% salary increase.

Faculty Salary

In the first year, based upon the number of sections being taught, there will be one faculty member teaching at a salary of $10,200 plus $4,794 in fringe benefits. Fall 2013 will begin with one pilot section of MATH 0001 (20 students) and then be extended to three sections of MATH 0001 (90 students) and two sections of MATH 0002 (60 students) during spring 2014. Summer sections are anticipated to be completely modular in 2014, serving 49 students in two sections of MATH 0001 and 70 students in two sections of MATH 0002.

In 2014-2015, the face-to-face method will be continued with additional Modular Mathematics sections added. Faculty will be paid $50,600 plus $23,782 in fringe benefits – accounting for approximately two sections of MATH 0001 and two sections of MATH 0002 in

summer 2014 totaling approximately 119 students. Six sections of MATH 0001 with 198 students and two sections of MATH 0002 with 51 students will be added in the fall 2014 semester. Spring 2015 will have approximately four sections of MATH 0001 serving 104 students and five sections of MATH 0002 serving 147 students. The Coordinator of the QEP will teach two sections in the fall and two in the spring.

In 2015-2016, faculty salaries will be $89,740 plus $42,178 in fringe benefits, with summer 2015 again offering a total of four sections. Fall 2015 will have ten sections of MATH 0001 serving 333 students and four sections of MATH 0002 with 133 students. For spring 2016, 202 students will be served in six sections of MATH 0001, and 149 students will be served in seven sections of MATH 0002. The Coordinator of the QEP will again teach two sections in the fall and two sections in the spring.

In 2016-2017, the summer will remain the same at four total sections, with fall 2016 adding yet another two sections of MATH 0001 for a total of 12 sections and MATH 0002 increasing to seven sections. Spring 2017 then reaches capacity at nine sections of MATH 0001 and ten sections of MATH 0002 offered in a modular format, resulting in $131,854 in salaries and $61,971 in benefits for faculty.

Finally, in 2017-2018, four sections are again offered during the summer session. In fall 2017, the program reaches its capacity with 15 sections of MATH 0001 and seven sections of MATH 0002. Spring 2018 remains similar to the year before at nine sections of MATH 0001 and ten sections of MATH 0002.

This implementation plan allows for a total of six sections of the developmental sequence to be taught using the face-to-face method if needed.[7] The implementation schedule was built on the averages from academic years 2008-2009 through 2012-2013 (see Table 10 and Table 11 for MATH 0001; see Table 12 and Table 13 for MATH 0002). The plan may be accelerated or slowed depending on student behavior, staffing, and the availability of classroom space. Salaries are expected to increase by 3% in each subsequent year depending on the availability of resources.

In all, approximately nine developmental mathematics sections will be eliminated during the implementation, with an estimated cost savings of $23,814 with salaries and benefits. These resources will be reinvested in additional tutors as needed.

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[7] These models are based on historical data. LSU Eunice personnel are aware that the number of MATH 0002 sections needed could increase as a result of increased success in MATH 0001.

Tutor and Student Assistant Salaries

During the first semester, the instructor and the Director of Developmental Education and Institutional Effectiveness are handling the tutoring duties. In spring of the first year, the Pathways to Success tutor will be located in the lab four hours per day to assist students at a cost of $7,200 plus $3,384 in benefits. In summer 2014, a tutor will be located in the lab for approximately six hours per day during classes on Monday, Tuesday, and Wednesday[8] with a salary of $3,600 plus $1,692 in benefits. The lab will remain open during regular business hours, staffed by a student assistant from the Office of Developmental Education who can assist with passwords and minor technical issues, with the Director of Developmental Education or the instructor assisting if necessary.

Beginning in 2014-2015, the Pathways to Success tutor will be reassigned to the lab 20 hours per week both fall and spring at a cost of $14,400 in salary plus $6,768 in benefits. As with the initial summer, tutoring during the eight week session will occur Monday, Tuesday, and Wednesday for approximately six hours per day at a cost of $3,600 plus $1,692 in benefits. Beginning in the third year, a full-time salary of $28,800 has been budgeted with a benefits package of $13,536 for tutoring. LSU Eunice personnel will either hire one full-time tutor or two part-time tutors to meet the tutoring demand. In the fourth and fifth years, the salary for the position of tutor includes a salary increase of 3%. Summer tutoring will remain the same.

Student assistants, working 20 hours per week during the fall, spring, and summer semesters, will be employed in the first two years. These hours will decrease to approximately 15 hours per week thereafter. LSU Eunice personnel are hesitant to rely too much on student assistants for tutoring due to their need for training and scheduling conflicts.

Travel Budget

In the first year, $1,500 will be allocated to pay for a consultant. In addition, professional development will be funded at $1,900 through the Office of Developmental Education budget. In the second and third years, the professional development will continue to be funded at $1,900 per year. In the fourth and fifth years, it is anticipated that current faculty will assist in training new faculty; thus, the funding for professional development will be $1,000 per year. Faculty will also be encouraged to apply for University Faculty Professional Development Funds in order to fund professional development above $1,000 for years four and five.

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[8] Summer mathematics classes at LSU Eunice meet on Monday, Tuesday, and Wednesday only.

Advertising Budget

During the first year of the program, the university will spend $2,600 on the promotion of *Path 2 Math Success*, including $500 for orientation folders, $1,000 for light pole banners, $200 for yard signs, $400 for brochures/flyers, and $500 for promotional items. Many of the promotional items will be re-used in the following years of this effort. However, stickers and rack cards (consumable supplies) will be re-ordered in subsequent years, so $900 has been allocated for these specific materials.

Supply Budget

In the first year, $6,423 will be earmarked for supplies, including $100 for fire extinguishers; $650 for ACT COMPASS credits; $200 for support materials; $700 for toner, paper, and markers; and $4,773 for Accutrack attendance tracking software. In the second through fifth years, there will not be an increase for fire extinguishers and COMPASS credits. The support materials budget will increase by $50 per year for the second, third, fourth, and fifth years. For toner, paper and markers, the second year will remain at $700, then in the third year will be increased by $100, and in the fourth and fifth years will be increased $50 each year. Accutrack will be decreased to $1,300 in the second through the fifth years. This is the software maintenance agreement for the product. The resources allocated for COMPASS credits will be used to pretest students in the modular developmental courses who do not take the mathematics assessment at orientation. Resources for students being assessed at orientation are provided through a separate budget line item in developmental education.

Professional Services Budget

This line item allows $3,000 for the first two years of the project for design, development, and bidding of the two classrooms and lab. This includes heating, ventilation, and air conditioning, as well as electrical distribution and a separate branch breaker distribution panel for each room. The three classrooms were designed during summer 2013, with M-203 and M-204 being available to students at the beginning of spring 2014.

Room Renovations

Each of the three rooms will be refurbished for the Modular Mathematics program, with the existing furniture being removed and chalkboards being updated to white boards. Additionally, walls and floors in the three rooms will be repaired and painted as required and

ceiling tiles replaced, totaling $8,790 over two years. A new electrical service will be installed that will contain a proper ground fault interrupter and branch breaker system per the national electrical code, totaling $58,750 for the first year and $39,500 for the second year. New computer switches will also be installed for a total of $2,862, along with new CAT 6 wiring and patch cables for $24,538 over the two years. Lastly, $4,783 is allocated for new white boards and bulletin boards.

Equipment Budget

Once the infrastructure is installed, the new multimedia equipment will be installed at a cost of $7,512 per room. Next, a total of 65 computers (39 in M-203 and 26 in M-204) at a cost of $1,091 per computer station, totaling $70,915, will be installed in the first year. In the second year, an additional 26 computers will be installed in M-211 for a total of $28,366. The totals represented include a computer in the multimedia equipment. Lastly, each classroom will have a Pharos Print Station and a printer for student use, totaling $8,145.

Furniture Budget

New furniture will also be installed in all three rooms as part of the Modular Mathematics program. For the first year, a total of $19,806 has been allocated for M-203 and M-204, while M-211 has $9,989 budgeted for the second year. File and supply storage is also budgeted at $2,232 for the first year.

Lastly, a plan is being put in place for the routine replacement of computers and printers. This is not shown on the budget since it extends beyond the five years. Dell warrants computers on state contract for five years, and the Office of Information Technology schedules replacement of student computers in the labs at the completion of the five-year cycle using technology fee funds. However, adding close to 90 computers to the replacement cycle was deemed problematic in terms of technology fee resources. As a result, a $50 course fee has been implemented, which would generate approximately $47,000 based on three-fourths of the developmental students in Modular Mathematics. These resources could be used for additional supplies, additional tutors, and the replacement of a set number of computers per year in the Modular Mathematics rooms in conjunction with the University's technology fee.

Table 16
QEP table of resources.

	2013-14	2014-15	2015-16	2016-17	2017-18	Total	LSUE (cash & in kind)	Technology fee	BOR Grant	Total
Administrators' Salary	23,875	24,591	25,329	26,089	26,872	126,756				
Administrators' Benefits	11,221	11,558	11,905	12,262	12,630	59,575				
Administrators' salary/benefits	*35,096.25*	*36,149.14*	*37,233.61*	*38,350.62*	*39,501.14*	*186,330.76*	186,330.76			*186,330.76*
Coordinator of the QEP Salary	8,100	37,000	38,110	39,253	40,431	162,894				
Coordinator benefits	3,772	17,390	17,912	18,449	19,003	76,525				
Coordinator salary/benefits	*11,872.00*	*54,390.00*	*56,021.70*	*57,702.35*	*59,433.42*	*239,419.47*	227,547.47		11,872.00	*239,419.47*
Faculty Salary	10,200	50,600	89,740	131,854	140,777	423,171				
Faculty Benefits	4,794	23,782	42,178	61,971	66,165	198,890				
Faculty salary/benefits	*14,994.00*	*74,382.00*	*131,917.80*	*193,825.38*	*206,942.19*	*622,061.37*	622,061.37			*622,061.37*
Tutor	7,200	18,000	32,400	33,372	34,373	125,345				
Student assistants	5,764	5,764	4,000	4,120	4,244	23,892				
Benefits	3,825	8,901	15,534	16,000	16,480	60,740				
Tutor/student assistants/benefits	*16,788.95*	*32,664.95*	*51,934.00*	*53,492.02*	*55,096.78*	*209,976.69*	209,976.69			*209,976.69*
Math consultant	1,500					1,500				
Professional Development	1,900	1,900	1,900	1,000	1,000	7,700				
Travel	*3,400.00*	*1,900.00*	*1,900.00*	*1,000.00*	*1,000.00*	*9,200.00*	9,200.00			*9,200.00*
Orientation folders	500	500								
Light pole banners	1,000									
Yard signs for campus	200									
Brochures/flyers	400	400								
Publicity/promo items	500									
Advertising	*2,600.00*	*900.00*	*0.00*	*0.00*	*0.00*	*3,500.00*	3,500.00			*3,500.00*
Support materials	200	250	250	300	350	1,350				
COMPASS credits	650	650	650	650	650	3,250				
Toner, paper, markers	700	700	800	850	900	3,950				
Accutrack software	4,773	1,300	1,300	1,300	1,300	9,973				
Fire extinguishers	100	100	100	100	100	500				
Supplies	*6,423.00*	*3,000.00*	*3,100.00*	*3,200.00*	*3,300.00*	*19,023.00*	12,950.00		6,073.00	*19,023.00*

ADG Design	3,000	3,000	0	0	0	6,000				
Professional services	*3,000.00*	*3,000.00*	*0.00*	*0.00*	*0.00*	*6,000.00*	*3,000.00*		*3,000.00*	*6,000.00*
Demolition	900	900	0	0	0	1,800				
Repairs to room	1,600	1,600	0	0	0	3,200				
Prime & repaint	1,800	1,200	0	0	0	3,000				
Replace ceiling tiles	540	250	0	0	0	790				
Electrical/HVAC upgrades	58,750	39,500	0	0	0	98,250				
Switches	1,908	954	0	0	0	2,862				
Install computers/phones	14,937	9,601	0	0	0	24,538				
Install white boards and bulletin boards	1,950	2,833	0	0	0	4,783				
Room renovations	*82,385.00*	*56,838.00*	*0.00*	*0.00*	*0.00*	*139,223.00*	*83,509.00*		*55,714.00*	*139,223.00*
Multimedia	15,024	7,512	0	0	0	22,536				
Computers (39) for 203	42,549	0	0	0	0	42,549				
Computers (26) for 204	28,366	0	0	0	0	28,366				
Computers (26) for 211	0	28,366	0	0	0	28,366				
Printer & Pharos station	5,430	2,715	0	0	0	8,145				
Equipment	*91,369.00*	*38,593.00*	*0.00*	*0.00*	*0.00*	*129,962.00*	*55,677.00*	*56,732.00*	*17,553.00*	*129,962.00*
Classroom furniture	15,693	8,000	0	0	0	23,693				
Chairs	4,113	1,989	0	0	0	6,102				
Storage	2,232	0	0	0	0	2,232				
Furniture	*22,038.00*	*9,989.00*	*0.00*	*0.00*	*0.00*	*32,027.00*	*9,989.00*		*22,038.00*	*32,027.00*
Total	**289,966.20**	**311,806.08**	**282,107.11**	**347,570.37**	**365,273.53**	**1,596,723.29**	**1,424,227.39**	**56,732.00**	**116,250.00**	**1,597,209.39**

Notes

Administrators' salaries are already funded on campus.

In spring 2014, the tutor moves from pathways to modular math account.

Benefits rate are calculated at 47%.

The Coordinator of QEP is teaching some courses already in QEP budget.

Assessment

In accordance with the selection of the QEP, the goals, objectives, and outcomes adopted by both the mathematics faculty and the QEP Committee are consistent with the current developmental mathematics sequence. This was done so that an analysis of the effectiveness of the Modular Mathematics program can be completed relative to the traditional face-to-face method. Data generated by the Coordinator of the QEP will be sent to the Director of Developmental Education and Institutional Effectiveness for summarizing during the normal LSU Eunice Institutional Effectiveness timeline.

According to the LSU Eunice Planning and Assessment Manual, each division is to have a mission, goals, and objectives based on SLOs. These elements currently exist for developmental education and will be expanded to include assessment of the QEP. Data will be collected during the academic year and summarized in June through August, with a report being completed by October of each year. Both summative and formative evaluations will occur. Summative evaluation of the QEP will determine if the program objectives are being met, while the formative evaluation will strive to improve the overall effectiveness of the QEP through the use of data. For example, the decision was made in the initial development of the QEP to leave the new Modular Mathematics courses as three credit hours so that an adequate comparison to the current face-to-face instructional methods could be completed, thus comparing "apples to apples." However, the QEP committee and the mathematics faculty are aware that there may be too many modules in the existing modular course plan, which may lead to difficulties in achieving the desired level of success. As a result, all involved feel that it is possible that the amount of course material may need to be examined in the two developmental courses, the developmental courses may need to become four credits at some point in time, or that a third developmental course may be needed. As the QEP is implemented, the data generated in the Assessment Plan will assist this decision-making process in order to continually improve student learning and institutional effectiveness overall. In other words, continual course redesign may take place as the QEP is implemented if the data indicates student learning and success are not increasing. Nevertheless, the following Assessment Plan was created based on two 3 credit hour courses using LSU Eunice's institutional effectiveness methodology.

Assessment of Goal One

The QEP seeks to increase student learning in developmental mathematics using innovative techniques of instruction.

Objective 1.1: The QEP seeks to increase achievement of student learning outcomes in MATH 0001 and MATH 0002.

Outcome 1.1.1: Upon the conclusion of the Pre-Algebra course (MATH 0001), the student will manipulate the order of operations on the real numbers.

Outcome 1.1.2: Upon the conclusion of the Pre-Algebra course (MATH 0001), the student will perform basic algebraic operations with expressions and linear equations.

Objective 1.1.3: Upon the conclusion of the Pre-Algebra course (MATH 0001), the student will analyze and compute measurements for different geometric figures.

Outcome 1.1.4: Upon the conclusion of the Introduction to Algebra course (MATH 0002), the student will perform basic algebraic operations.

Outcome 1.1.5: Upon the conclusion of the Introduction to Algebra course (MATH 0002), the student will perform basic operations involving the rectangular coordinate system.

Method: Objective 1.1 is related to the SLOs in each course and will be directly assessed from internal data using the final examination of each student regardless of the site or method of instruction. Results from Modular Mathematics will be compared to historical values from the traditional method of instruction shown in Table 17.

Benchmark: Data from the traditional face-to-face instructional method from spring 2011 through spring 2013 provides the benchmark for Objective 1.1 (see Table 17). Overall, the historical success rate was 71% for MATH 0001 (n = 1,581) and 66% for MATH 0002 (n = 1,373).

Table 17
Objective 1.1 targets based on historical benchmarks.

Description	Objective or Outcome	Historical Benchmark	Target
Overall MATH 0001	1.1	71%	75%
Order of operations	1.1.1	76%	80%
Basic algebraic operations	1.1.2	65%	70%
Geometric figures	1.1.3	65%	70%
Overall MATH 0002	1.1	66%	70%
Basic algebraic operations	1.1.4	64%	70%
Rectangular coordinate system	1.1.5	66%	70%

Target: Increase student success by the amount specified in Table 17 compared to existing methods of instruction. The QEP Committee and mathematics faculty feel that this target is realistic given the current institutional resources.

Responsible parties: Mathematics faculty, Coordinator of the QEP, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Objective 1.2: The QEP seeks to increase the cognitive ability of students enrolled in MATH 0001 and MATH 0002 by course redesign.

Method: This direct assessment will be accomplished by using a pretest and post-test. Mathematics faculty will choose SLO questions from the final exam to place on a pretest. Gain scores will be calculated from the internal data to measure increased cognitive ability. Results from Modular Mathematics will be compared to historical values from the traditional method of instruction.

Benchmark: The gain score will be benchmarked beginning fall 2013.

Target: As this objective has not been benchmarked, it is assumed that the post-test scores for students in Modular Mathematics sections will exceed the
1. pretest scores for students enrolled in Modular Mathematics sections.
2. post-test scores for students from the traditional method of instruction.

Responsible parties: Mathematics faculty, Coordinator of the QEP, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Objective 1.3: The QEP seeks to increase student mathematics scores on the Collegiate Assessment of Academic Proficiency (CAAP).

Method: This external direct assessment of student learning is nationally normed against other two-year institutions and will permit a comparison of proficiency in the material covered. While the CAAP is given upon the conclusion of College Algebra (MATH 1021) and Applied College Algebra (MATH 1015) courses, the Mathematics Content Analysis Report generated each summer permits examination of student proficiency in Pre-Algebra, Elementary Algebra, Intermediate Algebra, and Coordinate Geometry. Two reports will be generated beginning summer 2015. The data will be compared between students who have taken Modular Mathematics sequence and those who have not.

Benchmark: The LSU Eunice statistical means for each section of the Content Analysis Report will be a weighted average using data from the academic years 2009-2010 through 2012-2013 (n = 1,798). The national average will be from the 2012-2013 data, since the nationally normed data is averaged over three years.

Table 18
CAAP Content Analysis Report 2009-2010 through 2011-2012.

Section	LSU Eunice Weighted Means	National Average
Pre-Algebra	70	68
Elementary Algebra	72	63
Intermediate Algebra	46	45
Coordinate Geometry	52	46

Target: Increase proficiency in each subject area by at least 3%. The mathematics faculty and the QEP Committee believe that 3% is realistic given the historical data related to the CAAP.

Responsible parties: Coordinator of the QEP, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Assessment of Goal Two

The QEP seeks to increase student learning in the first general education mathematics courses after completion of developmental mathematics.

The objectives associated with Goal 2 are as follows:

Objective 2.1: The QEP seeks to increase achievement of student learning outcomes (SLOs) in Applied College Algebra (MATH 1015) and College Algebra (MATH 1021)[9].

Outcome 2.1.1: The student, upon successful completion of this course, will solve equations algebraically and graphically.

Outcome 2.1.2: The student, upon successful completion of this course, will solve inequalities algebraically and graphically.

Outcome 2.1.3: The student, upon successful completion of this course, will evaluate and interpret function values.

Outcome 2.1.4: The student, upon successful completion of this course, will graph functions.

Method: Objective 2.1 is related to the SLOs in each general education MATH 1015 and MATH 1021 and will be directly assessed internally using the final examination data of

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[9] Note that College Algebra (MATH 1021) and Applied College Algebra (MATH 1015) will be taught using the same outcomes initially; however, the mathematics department acknowledges that the MATH 1015 SLOs may differ slightly from the MATH 1021 outcomes in time.

each student regardless of site or method of instruction. Students completing the modular developmental mathematics sections will be compared to those who have had the traditional face-to-face developmental courses.

Benchmark: The MATH 1021 course is not yet benchmarked because the curriculum for the course changed effective fall 2013. Benchmarking SLOs for the revised course will begin with the final exam in fall 2013 and continue as the QEP is implemented. In addition, the MATH 1015 course is being offered for the first time in fall 2013. Benchmarking will occur in a similar fashion to MATH 1021.

Target: Meet or exceed the benchmarked value (as yet to be determined) for developmental students who have taken the traditional face-to-face sections of developmental mathematics. The QEP Committee and mathematics faculty feel that this target is realistic given the current institutional resources.

Responsible parties: Mathematics faculty, Mathematics Coordinator, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Objective 2.2: The QEP seeks to increase student mathematics scores on the Collegiate Assessment of Academic Proficiency (CAAP).

Method: The CAAP is an external assessment given to students upon the conclusion of the MATH 1015 and MATH 1021 courses and is nationally normed against two-year institutions. Proficiency in College Algebra is directly assessed using the CAAP Content Analysis Report. The results will then be compared between students who took the traditional face-to-face instructional method. Two reports will be generated beginning summer 2015. The data will be compared between students who have taken the Modular Mathematics sequence and those who have not.

Benchmark: The historical figures from the academic years 2009-2010 through 2012-2013 for College Algebra is 28. The national benchmark is 25.

Target: Meet or exceed historical values from academic years 2009-2010 through 2012-2013. The QEP Committee and mathematics faculty feel that this target is realistic given the current institutional resources.

Responsible parties: Mathematics faculty, Coordinator of Mathematics, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Assessment of Goal Three

The QEP seeks to improve institutional effectiveness by providing faculty training, increasing student retention in mathematics, and decreasing the time spent in developmental mathematics.

The objectives associated with Goal 3 are as follows:

Objective 3.1: The QEP provides professional development opportunities in alternative forms of instruction to mathematics faculty teaching courses associated with the QEP.

> Method: This objective speaks to the importance of faculty development and faculty sharing information with each other as the Modular Mathematics program is implemented. Training may include webinars, attendance at regional or national conferences, and individual faculty training other faculty members based on their experience in the program.

> Benchmark: Faculty will demonstrate knowledge of the theoretical, pedagogical, and operational aspects of the Mathematics Emporium and Modular Mathematics at LSU Eunice through the written response to questions, observation, consultation with the Coordinator of the QEP, informal evaluation, and formal evaluation. All faculty will receive professional development prior to teaching and during their first semester of instruction in the Modular Mathematics sequence.

> Target: Train faculty in the Modular Mathematics methodology prior to teaching in the program. Faculty will demonstrate knowledge of the theoretical, pedagogical, and operational aspects of the Mathematics Emporium and Modular Mathematics at LSU Eunice.

> Responsible parties: Mathematics faculty, Coordinator of Mathematics, Coordinator of the QEP, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Objective 3.2: The QEP will increase student retention and completion in the developmental and general education mathematics sequence.

> Method: This objective seeks to increase the successful completion of the next course in the sequence. Internal data will track students whether they initially enroll in MATH 0001 or MATH 0002.

> Benchmark: For all students enrolling in MATH 0001 (with repetition)
> - 68% complete MATH 0001.
> - 37% complete MATH 0002.
> - 20% complete the first general education mathematics.

> For all students enrolling in MATH 0002 (with repetition)
> - 66% complete MATH 0002.
> - 35% complete the first general education mathematics.

> Target: Increase the completion of general education mathematics by at least 5% for students whether they initially enroll in MATH 0001 and MATH 0002. The QEP Committee and mathematics faculty feel that this target is realistic given the current institutional resources.

Responsible Parties: Mathematics faculty, Coordinator of Mathematics, Coordinator of the QEP, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Objective 3.3: The QEP will reduce the amount of student time spent in developmental mathematics.

Method: Finally, objective 3.3 seeks to decrease the time students spend in developmental education mathematics so they progress to their general education mathematics course and ultimately to their degree or certificate. This objective will internally measure the time needed to complete the first general education mathematics course based on the initial enrollment in developmental mathematics.

Benchmark: Historically, during the academic years 2007-2008 through 2011-2012, students beginning in
1. MATH 0001 have, on average and with repetition, taken 2.6 semesters to complete their developmental education mathematics courses and 4.1 semesters to complete their first general education mathematics course.
2. MATH 0002 have, on average and with repetition, taken 1.6 semesters to complete their developmental education course and 2.5 semesters to complete their first general education mathematics course.

Target: The time spent completing developmental education will be less than current values. The time spent in completing general education mathematics after the completion of developmental education mathematics will be less than current values. The QEP Committee and mathematics faculty feel that this target is realistic given the current institutional resources.

Responsible Parties: Coordinator of Mathematics, Coordinator of the QEP, Director of Developmental Education and Institutional Effectiveness, and the Head of the Division of Sciences and Mathematics.

Table 19 presents a summary of the actions that will be taken during each assessment cycle.

Table 19
Assessment of the QEP.

Time	Activity	Result	Responsible
Beginning August 2013, January 2014, and June 2014 (typical beginning of the semester for fall, spring, and summer semesters)	Pretest competency of developmental mathematics students	Test and note scores	CQEP and mathematics faculty

December 2013, May 2014, and July 2014 (Final Exam) (typical end of the semester for fall, spring, and summer semesters)	Post-test competency of developmental mathematics students Gather data on SLOs from final exam for both developmental education and general education	Test and note scores	CQEP and mathematics faculty
December and May of each year	Give the mathematics portion of the CAAP in MATH 1015 and MATH 1021	Completed CAAP assessment	Coordinator of Mathematics, Head of the Division of Sciences and Mathematics (HDSM)
December 2013 and May 2014	Data evaluation	Consider results of first year in Modular Mathematics	CQEP and Director of Developmental Education and Institutional Effectiveness (DDEIE)
May	Combine data into one data set and analyze data	Institutional Effectiveness Reports	CQEP and DDEIE
June - August	Analyze all parts of 1.1 Compare to historical face-to-face results in Table 17	Institutional Effectiveness reports, report to faculty, decide if objectives were met	CQEP, DDEIE, and HDSM
June - August	Analyze 1.2 Match pretest and post-test scores, calculate gain score, compare modular to face-to-face	Benchmark and examine gain scores from both groups.	CQEP, DDEIE, and HDSM
June – July	Analyze 1.3 Assemble two CAAP Content Analysis Reports for results on Pre-Algebra, Elementary Algebra, Intermediate Algebra, and Coordinate Geometry. Compare Modular Mathematics to traditional (in addition to all students – three reports in all)	Mathematics Content Area Analysis Report	CQEP, DDEIE, and HDSM

June – August	Analyze all parts of 2.1, separating those who have taken developmental mathematics (traditional and modular) to students who placed into general education mathematics	Institutional Effectiveness reports, report to faculty, decide if objectives were met	CQEP, DDEIE, and HDSM
June – July	Analyze 2.2 Assemble two CAAP Content Analysis Reports for results on College Algebra. Compare Modular Mathematics to traditional (in addition to all students – three reports in all)	Mathematics Content Area Analysis Report	CQEP, DDEIE, and HDSM
June - August	Analyze 3.1 Faculty provide portfolios with answers to questions and logs	Faculty trained to teach in the Modular Mathematics delivery method.	Mathematics faculty, Coordinator of Mathematics CQEP and HDSM
June - August	Analyze 3.2 and 3.3 by running institutional reports	Institutional Effectiveness reports, report to faculty, decide if objectives were met or action needed	CQEP, DDEIE, and HDSM
Monthly (or as needed)	Meetings to discuss issues and problems	Meeting minutes	CQEP, mathematics faculty, DDEIE, and HDSM

Final Comments

Finally, the fall 2013 session began as the finishing touches were placed on this document. In addition, the first three weeks of the pilot Modular Mathematics class are completed. LSU Eunice is cautiously optimistic – students are actively engaged with the subject. Most students in the class enter the room, login, and begin work without being told. One-half of the students tested out of the first module using the pretest. At the conclusion of the third week of fall 2013

- the class mean is 86%
- five students are ahead of the pacing guide, with one student ready to take the final exam
- 11 of the students are where they are supposed to be according to the pacing guide
- two students are behind the pacing guide by one section

- one student is behind the pacing guide by several sections, having missed several classes
- one student has missed several classes; the rest have perfect attendance.

In addition, some students are having an informal competition between each other and some have said that they would like to finish the course by the beginning of November. While three weeks does not determine the ultimate outcome of the QEP, it is off to a great start. It is difficult to determine who is more excited about Modular Mathematics thus far – the students or the faculty.

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Appendix A

SUGGESTED QUALITY ENHANCEMENT PLAN TOPICS

Rank the topics in order of preference from 1 to 7.

_____ Develop a centralized enrollment center that includes admissions, financial aid, business office, and academic advising.

_____ Enhance online instruction by training students in electronic resources, online course readiness screening and by training faculty in online instructional resources and pedagogy.

_____ Enhance student retention by developing a centralized advising center, expanding the use of learning communities, implementing an online degree tracking system, creating a campus tutorial center, requiring the freshmen orientation course, and implementing an intervention plan for underachieving students.

_____ Centralize developmental education under a single academic unit.

_____ Redesign developmental mathematics courses to include a computer laboratory component.

_____ Develop a comprehensive recruitment plan to include strategies to recruit early start students, high-performing high school students, and non-traditional students.

_____ Enhance student support services by expanding electronic services that include an online freshmen orientation, social media applications, online career assessment, electronic tracking of student class attendance, and a testing center for placement tests and online examinations.

Other (Use the space provided below to identify a potential topic for the QEP not listed above):

_____

_____

_____

Appendix A (continued)

TOPIC	1	2	3	4	5	6	7	8
Develop a centralized enrollment center that includes admissions, financial aid, business office, & academic advising	9	10	12	14	4	7	6	
Enhance online instruction by training students in electronic resources, online course readiness screening & by training faculty in online instructional resources and pedagogy.	8	5	13	11	13	6	6	
Enhance student retention by developing a centralized advising center, expanding the use of learning communities, implementing an online degree tracking system, creating a campus tutorial center, requiring the freshman orientation course, & implementing an intervention plan for underachieving students.	27	15	10	4	4	5	5	
Centralize developmental educ. under single academic unit	1	4	12	5	12	11	14	2
Redesign dev. math courses to include a computer laboratory component.	2	4	3	9	9	17	18	
Develop comprehensive recruitment plan to include strategies to recruit early start students, high-performing high school students, & non-traditional students.	10	6	1	13	12	9	11	1
Enhance student support services by expanding electronic services that include an online freshmen orientation, social media applications, online career assessment, electronic tracking of student class attendance, and a testing center for placement tests and online exams.	6	22	11	5	8	8	4	
OTHER*	4							

*All additional topics were considered and due to being broad, they were folded into the original seven topics.

Appendix B

LSU Eunice - QEP Committee Members

1. Mr. Gerald Patout (Chair)   Director, LeDoux Library

2. Dr. Michael Alleman   Interim Division Head, Liberal Arts; Assoc. Prof. of English

3. Dr. Kenneth Elliott   Assistant to the Director of Continuing Education

4. Mr. Wayne Escudé   Instructor of Mathematics

5. Dr. Paul Fowler   Director, Developmental Education; Institutional Effectiveness; SACSCOC Liaison

6. Ms. Toisha Gordon   Instructor of Education / Developmental Studies

7. Mr. John Guillory   Tutorial Coordinator – Student Support Services

8. Ms. Stephanie Guillory   Instructor of Business Management and Accounting

9. Ms. Marjana Herring   Information Technology Technical Support Specialist 2

10. Mr. Chad Jones   Institutional Liaison Officer

11. Ms. Lorrie Joubert   Coordinator and Associate Professor of Mathematics

12. Dr. Doug Narby   Associate Professor of Psychology

13. Mr. Damien Papillion   Developmental Studies Advisor

14. Ms. Morgan Richard   Student Representative

15. Ms. Crystal Rougeau   Developmental Studies Advisor

16. Dr. Jason Sampler   Registrar and Director of Admissions

17. Ms. Angela Sonnier   Associate Professor of Rad. Tech. and Clinical Coordinator

18. Mr. Donnie Thibodeaux   Assistant to Vice Chancellor for Business Affairs

19. Ms. Jamie B. Thibodeaux   Instructor of Mathematics

Appendix B (continued)
LSU Eunice – QEP Subcommittees and Members

Student Learning Outcome:

Ms. Lorrie Joubert

Ms. Angela Sonnier

Ms. Jamie Thibodeaux

Assessment:

Dr. Doug Narby

Mr. Wayne Escudé

Review of Literature:

Dr. Michael Alleman

Dr. Kenneth Elliott

Mr. Damien Papillion

Organizing for Success:

Mr. Chad Jones

Ms. Toisha Gordon

Implementation Timeline:

Dr. Jason Sampler

Ms. Jamie Thibodeaux

Identification of Actions:

Ms. Crystal Rougeau

Ms. Toisha Gordon

Mr. John Guillory

Resources:

Mr. Donnie Thibodeaux

Ms. Stephanie Guillory

Appendix C

Louisiana State University Eunice

Office of Developmental Education   P.O. Box 1129   Eunice, LA 70535
Phone (337) 550-1433   FAX: (337) 550-1479
Pathways to Success M-207

Date: October 24, 2012

To: Dr. Renee Robichaux, Vice Chancellor for Academic Affairs
               Dr. John Hamlin, Interim Division Head, Sciences
               Dr. William Nunez, Chancellor

From: Dr. Paul Fowler, Director of Developmental Education
               Mrs. Jamie Thibodeaux, Adjunct Instructor, Mathematics

Re: Report on Visit to Northwest Shoals Community College (NW-SCC).

Introduction

The site visit by Jamie Thibodeaux and Paul Fowler was conducted on October 18 and 19, 2012. During the visit, we met with

- Ms. Crystal Ingle, Math Lab

- Mr. Jacob Alford, Math Lab

- Mr. John McIntosh, Associate Dean of Institutional Effectiveness, Distance Education, and Development

- Dr. Timmy James, Associate Dean of Instructional Programs Phil Campbell Campus

- Dr. Glenda Golagross, Vice President of Instruction

The purpose was to investigate if and how LSU Eunice could implement a modular developmental mathematics program similar to NW-SCC in order to improve student learning. Most of the information discussed related to the NW-SCC campus and not their Phil Campbell Campus.

NW-SCC and LSU Eunice have similar demographics in that both institutions have a large portion of their students coming from low SES. One primary difference is that NW-SCC students are 85% White (non-Hispanic) students while LSU Eunice has 68% White (non-Hispanic) students. The motivation of our students in completing the coursework could be a

consideration of whether this avenue should be pursued. Very simply, we are concerned that our students have never had to do anything based on their own initiative.

The NW-SCC personnel met with John Squires who developed the first modular math program several years ago at Cleveland State Community College in Tennessee. In the process of setting up the lab, NW-SCC personnel developed and received a Title III grant to develop the curriculum and perform the capital work necessary to set up the infrastructure. On the NW-SCC campus, they have one primary math lab with 96 computers and two classrooms with 25 computers each set up for the modular math program. The math lab is open from 8 am through 9 pm on Monday through Thursday and 8 am to noon on Friday and is used for math only. Internet Explorer is locked down to only approved math related sites and students may not use the lab to go to Facebook or any other sites that are not approved.

Developmental math is only offered using the modular math method; there are no traditional face-to-face classroom settings.   In fall 2012, they offered three different developmental math courses covering much of the same material that LSU Eunice covers (see Table 20). Note that NW-SCC offers their course in a MW or TR only. The campus closes at noon on Friday. The maximum enrollment for all course sections is 35.

Table 20
NW-SCC developmental mathematics courses.[10]

Course Code	Course	Number of Sections	Total Capacity
090	Basic Mathematics	10	350
098	Elementary Algebra	15	450
100	Intermediate Algebra	11	385
	Totals	36	1,185

Each course is worth three credit hours and the same textbook is used for all three courses. The Pearson textbook is written by the same author as MATH 0001/0002 on the LSU Eunice campus.

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[10] NW-SCC only. Phil Campbell Campus is not included.

For Comparison, LSU Eunice is currently offering the following developmental mathematics courses (see Table 21). The students in the MATH 1020 are included because they would have required one section of either MATH 0001 or MATH 0002 if MATH 1020 had not been offered.

Table 21

LSU Eunice developmental mathematics courses.[11]

Course Code	Course	Number of Sections	Total Capacity
MATH 0001	Pre-Algebra	20	481
MATH 0002	Introduction to Algebra	11	293
MATH 1020	Co-requisite	1	25
	Totals	32	799

In order to be equivalent, the LSU Eunice courses would either need to be increased to four hours each or would have to split up into three 3 credit hour courses.

Math Lab and Coordination of Courses

In addition to the actual instructors for the course sections, NW-SCC hired one lab coordinator to oversee the operation of the math lab and one content coordinator who works with the faculty as a group to maintain the course content and programming. Both will assist students with questions in the lab if they have the time to do so. Both also teach a section or two; however, their primary responsibility is in the lab and not in the classroom.

The lab also has six student aids that are proficient in the course work and answer student questions both on course content and the use of the computer. The lab aids schedules may change from week to week given lab usage requirements.

The lab also supplies student headsets for the computers and student attendance is tracked through a program call AccuTrack. The computers themselves are IBM "all in one" machines. NW-SCC personnel note that they were not sure they made a good decision with the machines since they have to be sent to IBM for any machine related problems.

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[11] LSU Eunice campus site only. Cenla and Dual credit courses are not included.

Faculty

NW-SCC hires Bachelors high school certified math instructors to teach 090 and 098. Only faculty with 18 graduate hours in mathematics may teach 100. This is a limitation they recognize; however, it is also related to the fact that they have no college algebra course. After MATH 100, student progress to pre-calculus by Board of Regents policy creating a gap between the two courses.

Actual Course Structure

It is important to realize that two courses may be meeting simultaneously. For example, students from both 090 and 098 may be meeting in the same room during a single class period. This requires a faculty member to know which students are registered for which courses and assist them appropriately. However, there are no lectures and the faculty member acts as a facilitator instead of an instructor.

Placement into developmental versus general education mathematics is through the use of ACT scores and COMPASS. The individual scores necessary to place into each course were not discussed. An orientation to the course is given the first day by the course coordinator (not the instructor) and all students must answer all questions correctly on the syllabus quiz prior to beginning the actual material. Students are permitted to use their syllabus while taking the quiz. As the first week draws to a close and the second week begins, students are selected to attend Monday or Wednesday (or Tuesday, Thursday) and they must be present in the classroom for an hour and 20 minute period during class time. Students must also be present in the lab for an additional one hour and 20 minutes per week beyond the classroom time. The may attend both days in the classroom if enough computers are available keeping in mind that the maximum class enrollment is 35 with only 25 computers in the classrooms. Students who are not showing up in the first few weeks of the semester are dropped from the course by the census date. It is the responsibility of the instructor to contact students who are not attending class and meeting the requirements of the course.

Upon completion of the syllabus quiz, students then begin each module by taking an optional pre-test of approximately 10 questions (see Figure 5). If a student successfully completes the pre-test with an 80% or above, then the student may skip that particular module's homework and use the pre-test as the final grade for that module. Students who score 79% and

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below on the pre-test begin watching the videos, taking notes, and completing 10 to 15 homework problems per section for a total of 30 to 45 problems per module which are typically two to three sections long. Students not wishing to take the pre-test may simply begin watching the videos for the module. NW-SCC personnel noted that students are not permitted to use calculators on the first two modules of 090 dealing with integers and the order of operations with integers. NW-SCC personnel also noted that they have supplemented some of the videos available from Pearson.

Students then attempt a module quiz after completing the homework. Since the course is competency based, students must score an 80% on the quiz prior to moving to the next module. If the student does not score an 80%, then remediation is automatically assigned to the student by the computer on the most missed sections. The student must score a 90% or above on the remediation in order to attempt the quiz a second time. The faculty member then intervenes with students that do not complete the second quiz with the required 80%. This involves the faculty member looking at the notebook and notes taken during the videos. Faculty members also attempt to determine if the student is merely watching the videos without taking notes or simply attempting homework without watching the videos at all. Students who do not successfully complete the third attempt with 60% may not move to the next module. Students with a 60% may move forward; however, NW-SCC personnel admitted this was probably not a wise move on their part. They mentioned that they should have left the criteria at 70% and required the student to attend supplementary instruction through TRIO programs. They also mentioned that few students reach the third quiz and do not achieve at least a 60%. NW-SCC personnel do offer special supplemental instruction sections on difficult material such as factoring or fractions at specific times for students. These sessions are free to the students.

All quizzes and tests are password protected with passwords that change weekly. Students must take all quizzes and tests in the lab or in the classroom. All quizzes and midterm exam are free response, with the final exam being the only assessment that is multiple choice. Work is not graded; however, it is kept in case the student does not successfully complete the quizzes on the third attempt. Faculty members talk to students who are not putting the required amount of time into the course. Faculty members spend more time tutoring students, grading homework and assigning participation points then they do grading any quizzes or exams.

Finally, two issues often surface according to NW-SCC personnel. First is that students who placed into 098 and 100 may move back to either 090 or 098 up to census day creating

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additional paperwork. In addition, students may complete all three courses in one semester. NW-SCC personnel note that this has only happened once or twice, but that it is more likely that a student will complete two courses in a semester. They mentioned that the higher course is what appears on the student's transcript. For example, if a student completes both 090 and 098 in one semester, 090 is dropped and back dated so it does not appear while 098 is added. Students may not receive credit for two classes in one semester unless they ask for special permission and pay for two courses.

There is also a "rollover option" for students who do not think they can successfully complete the course in one semester (see Figure 6). For example, suppose a student is enrolled in MATH 090 for fall 2012. If the student is having difficulty with the course, but does have a 70% participation grade and scores a 70% for the midterm exam, then they may file for a rollover to spring. The student receives an F for the fall semester. The student also registers and pays for the course in the spring. If the student successfully completes the course in the spring with an A, B, or C, then the grade in fall is changed from an F to a W and the student receives the grade earned for spring. The student may then begin MATH 098 in the spring if they wish. However, if the student completes MATH 098 in the spring, then the student will receive the grade in summer providing the student registers and pays for the course.

TRIO and Student Support Services

NW-SCC personnel indicated that they have a TRIO Program. The TRIO Program has the exact same set up for tutoring as the math lab. TRIO personnel are trained in the modular math program and the program director teaches one of the sections for the lab. NW-SCC personnel indicated that since they moved to the modular math program, students actually keeping their tutoring appointments in the TRIO lab have increased from 40% to 80%.

Other Issues Emphasized

The first was that academic advisors must talk up the new method at orientation. This includes possibilities for students and the fact that the student will have to work hard, but with benefits by progressing at own pace (within reason) and can complete more than one course in a semester. In addition, some other marketing tips for orientation were that:

1. Students can save themselves money.
2. Students can save themselves time.
3. The program is more flexible than face-to-face courses.

4. Students can finish the course early and not come back for the remainder of the semester unless they wish to progress to the next course.

5. Students can finish more than one course in a semester.

Next, the need to hire the right personalities to teach the course was emphasized. In fact, the personalities were more important to them than being SACS accredited to teach general education mathematics. This included courting tenured math faculty who did not wish to work with the new program. Very simply, they have some math faculty that they will not allow to teach in the modular math program.

NW-SCC personnel also noted that they had some "push back" on retesting because students thought it should be allowed in other subjects. Faculty in other areas became somewhat frustrated about this; however, retesting does not exist in other areas. NW-SCC indicated that the syllabi for the courses specifically state that retesting is unique to the math lab and the developmental mathematics courses.

Another issue is the modular math program's simplistic nature in that:

1. There are 10-15 homework questions per assignment for a total of approximately 450 for the course instead of 1,300.

2. The course material is offered in smaller chunks or modules.

3. There should be not more than 10-12 modules per course.

4. There are approximately three sections per module or quiz.

5. There are 30 questions on the midterm

6. There are 30-40 questions on the final. The final is multiple choice to measure outcomes, but all other assessments are free response.

7. There is virtually no grading for the faculty.

NW-SCC increased their overall success rate in developmental mathematics by ten percentage points. They also found that students who took the modular math did better in the pre-calculus course than did students who did not take the modular sequence.

Figure 5
NW-SCC course layout.

Placement into 090, 098, or 010	Student actually places into 098.	Student attends the course orientation (mandatory) and successfully completes the syllabus quiz.

Take pretest for first course module (approximately 10 questions).

Student may drop down to math 090 prior to census day with special permission.

Pretest score < 80%
Student must begin first module by watching videos and taking notes.

Pretest score ≥ 80%
Student moves to next module
or
Student may choose to complete module for additional practice.

Homework is 10 to 15 questions per section for no more than 45 questions per module.
Student must score ≥ 70% on homework to take a quiz.

Student scores ≥ 80% on quiz
Moves to next module.

Student scores < 80% on quiz
Student must complete computer generated homework problems on the specific types of problems missed on the quiz.

Student scores < 90%
may not retake quiz.

Student scores ≥ 90% on additional homework may now retake quiz.

Student scores ≥ 80%
on quiz
Moves to next module.

Student scores < 80%
Attempts remediation for the second time (same problems)

Intervention by instructor may occur to determine if student is actually taking notes and watching videos.

Student completes all work
including the final exam for 098
(the final exam may only be taken once).

Remediation ≥ 90%
Student may again take quiz.
Students are permitted to move on to the next module if they achieve a 60% or higher on third attempt at quiz.

Student may choose to begin MATH 100 or not to attend class.

If the student completes MATH 100 prior to the end of the semester, then 098 is dropped and does not appear on the transcript.
MATH 100 is added so it will it will appear on the transcript.

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Figure 6
Course possibilities.

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                        ┌─────────────────────────────────────┐
                        │ Fall 2012 – student takes MATH 090   │
                        └─────────────────────────────────────┘
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Fall 2012 – student takes MATH 090

Finishes MATH 090 In one semester

Student finishes MATH 090 prior to end of fall.

Student does not finish in the fall 2012 semester.

Student registers For MATH 098 In spring 2013 and no longer needs to attend class for fall.

Student begins working on MATH 098 during the fall semester

ROLL OVER OPTION
Students who have a 70% in participation and a 70% on the midterm can opt to continue the course the following semester.

Student does not have a 70% in participation and/or does not receive a 70% on the midterm.

Student completes 098. 098 appears on the transcript and 090 is dropped (and is not on the student's record).

Student does not complete 098, registers for it for spring 2013.

Student receives a grade of F for fall.

Student receives an F for 090.

Student registers for MATH 098 in spring 2013 and continues working where they left off.

Students must start at the beginning if they do not take the course in consecutive semesters. Summer is included as a consecutive semester

Student completes 090 in spring 2013 (with a C or better).

Fall 2012 grade changed to W. The student receives the grade for spring 2013.

The student may continue to 098 in spring.

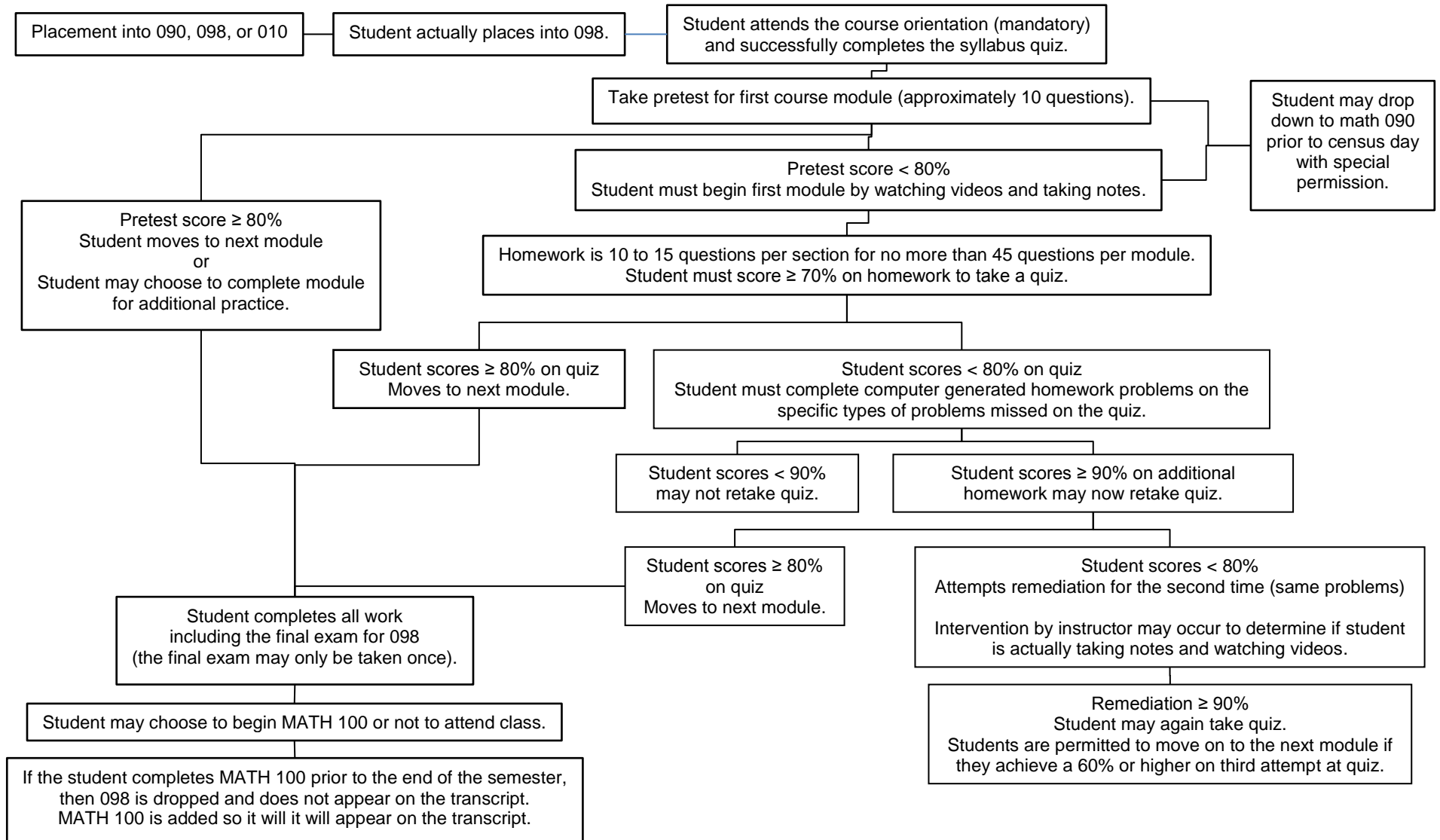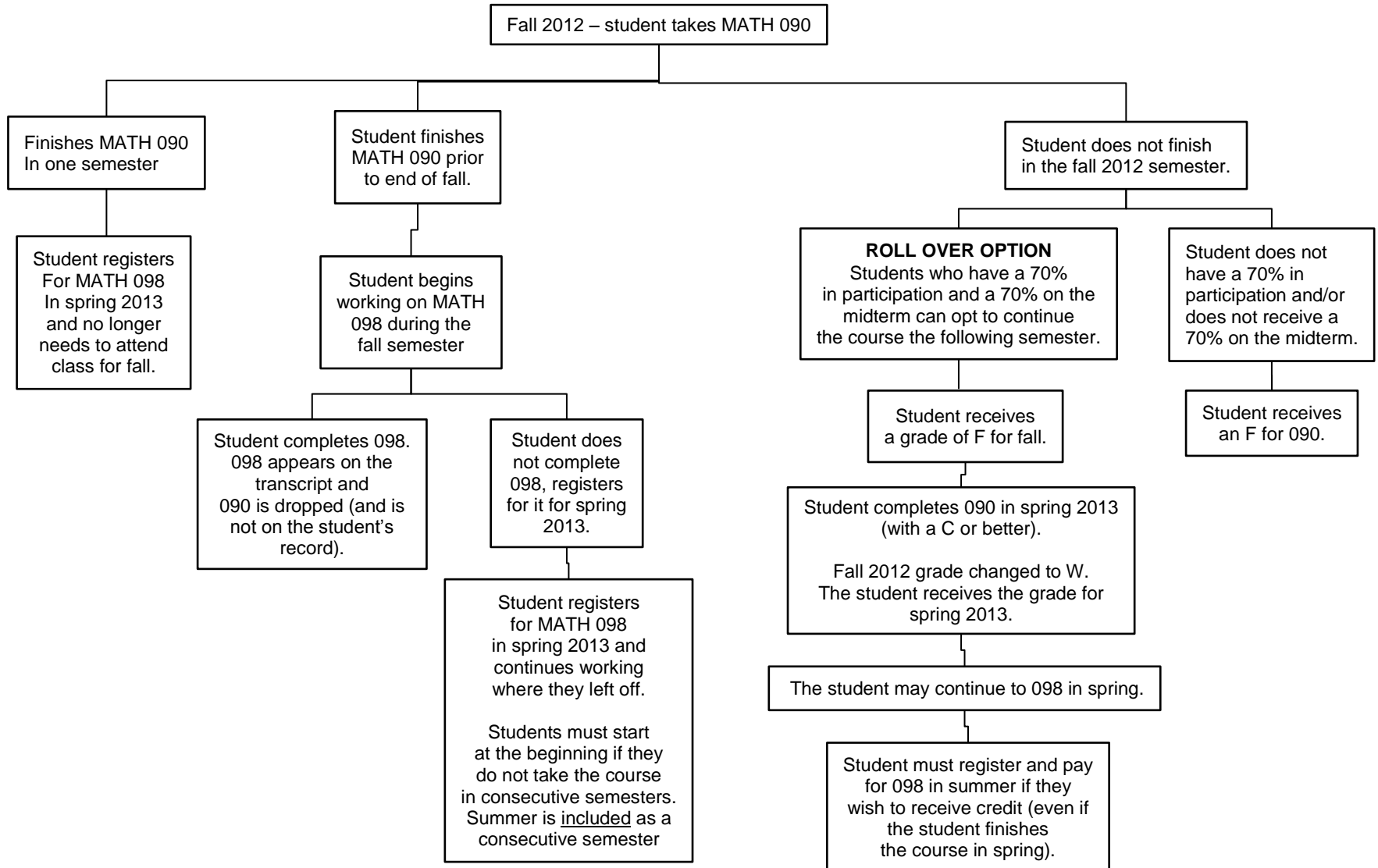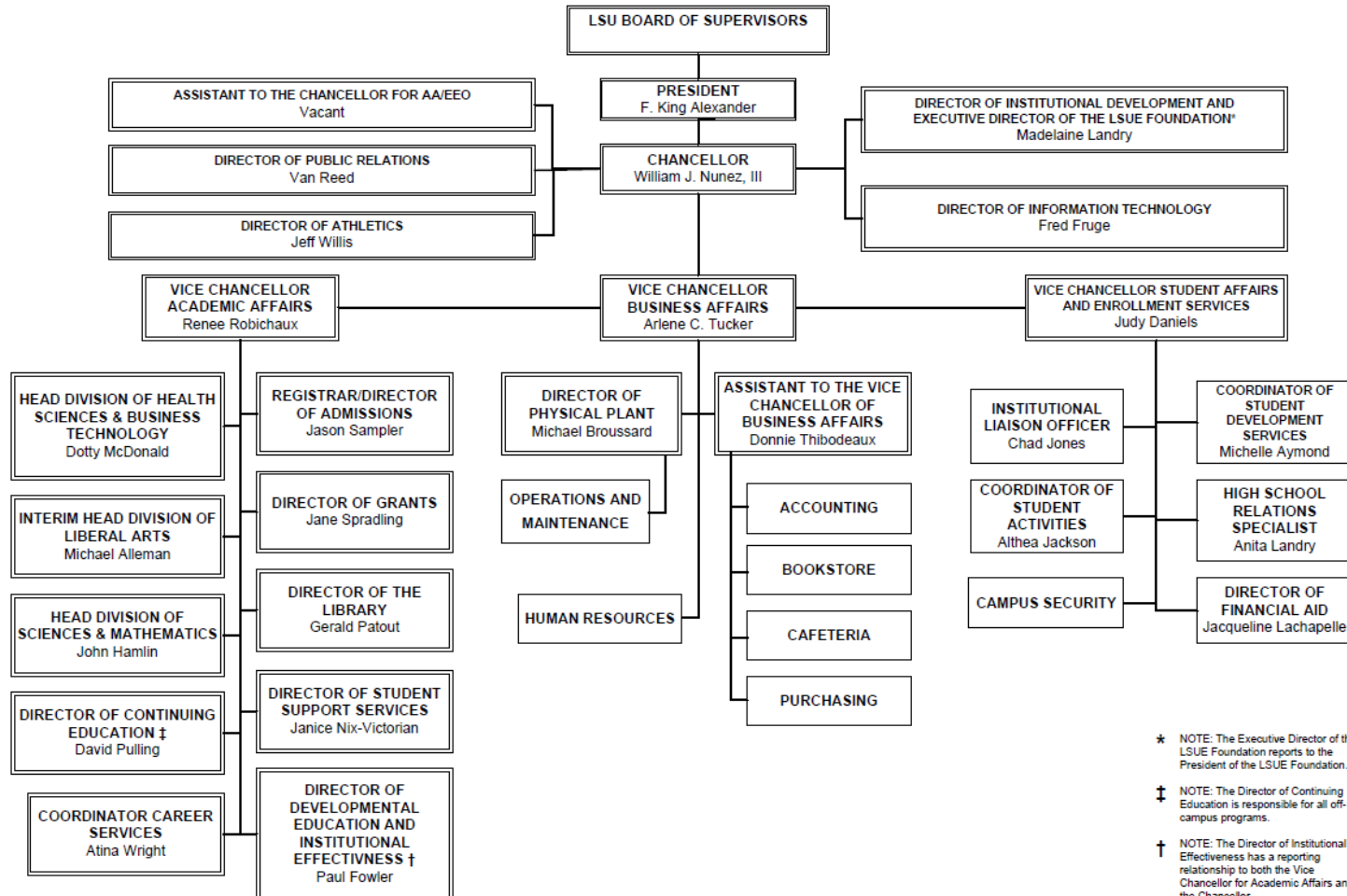**Student must register and pay for 098 in summer if they wish to receive credit (even if the student finishes the course in spring).**

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Appendix D

LSU Eunice Organizational Chart

ADMINISTRATIVE ORGANIZATION
FOR LOUISIANA STATE UNIVERSITY EUNICE
SEPTEMBER 2013

LSU BOARD OF SUPERVISORS

	PRESIDENT	
ASSISTANT TO THE CHANCELLOR FOR AA/EEO Vacant	F. King Alexander	DIRECTOR OF INSTITUTIONAL DEVELOPMENT AND EXECUTIVE DIRECTOR OF THE LSUE FOUNDATION* Madelaine Landry
DIRECTOR OF PUBLIC RELATIONS Van Reed	CHANCELLOR William J. Nunez, III	
DIRECTOR OF ATHLETICS Jeff Willis		DIRECTOR OF INFORMATION TECHNOLOGY Fred Fruge

VICE CHANCELLOR ACADEMIC AFFAIRS — Renee Robichaux

VICE CHANCELLOR BUSINESS AFFAIRS — Arlene C. Tucker

VICE CHANCELLOR STUDENT AFFAIRS AND ENROLLMENT SERVICES — Judy Daniels

HEAD DIVISION OF HEALTH SCIENCES & BUSINESS TECHNOLOGY — Dotty McDonald

REGISTRAR/DIRECTOR OF ADMISSIONS — Jason Sampler

DIRECTOR OF PHYSICAL PLANT — Michael Broussard

ASSISTANT TO THE VICE CHANCELLOR OF BUSINESS AFFAIRS — Donnie Thibodeaux

INSTITUTIONAL LIAISON OFFICER — Chad Jones

COORDINATOR OF STUDENT DEVELOPMENT SERVICES — Michelle Aymond

INTERIM HEAD DIVISION OF LIBERAL ARTS — Michael Alleman

DIRECTOR OF GRANTS — Jane Spradling

OPERATIONS AND MAINTENANCE

ACCOUNTING

COORDINATOR OF STUDENT ACTIVITIES — Althea Jackson

HIGH SCHOOL RELATIONS SPECIALIST — Anita Landry

HEAD DIVISION OF SCIENCES & MATHEMATICS — John Hamlin

DIRECTOR OF THE LIBRARY — Gerald Patout

BOOKSTORE

HUMAN RESOURCES

CAFETERIA

CAMPUS SECURITY

DIRECTOR OF FINANCIAL AID — Jacqueline Lachapelle

DIRECTOR OF CONTINUING EDUCATION ‡ — David Pulling

DIRECTOR OF STUDENT SUPPORT SERVICES — Janice Nix-Victorian

PURCHASING

COORDINATOR CAREER SERVICES — Atina Wright

DIRECTOR OF DEVELOPMENTAL EDUCATION AND INSTITUTIONAL EFFECTIVNESS † — Paul Fowler

* NOTE: The Executive Director of the LSUE Foundation reports to the President of the LSUE Foundation.

‡ NOTE: The Director of Continuing Education is responsible for all off-campus programs.

† NOTE: The Director of Institutional Effectiveness has a reporting relationship to both the Vice Chancellor for Academic Affairs and the Chancellor.

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Appendix E

LSU
LOUISIANA STATE UNIVERSITY–EUNICE
EUNICE

Office of Developmental Education ■ P.O. Box 1129 ■ Eunice, LA 70535
Phone (337) 550-1433 ■ FAX: (337) 550-1479
Pathways to Success M-207

August 30, 2013

Coordinator of the Quality Enhancement Plan
Job Description

FUNCTIONS OF WORK:
The Coordinator of the Quality Enhancement Plan (QEP) is a mathematics faculty position reporting to the Head of the Division of Sciences and Mathematics responsible for the design, implementation, and the day to day operation of the QEP and the *Path 2 Math Success*.

EXAMPLES OF WORK:
1. (80%) Perform daily tasks associated with all sections of Modular Mathematics to maintain rigor and academic excellence
    a. teach a minimum of two classes per semester using the Modular Mathematics program
    b. decide on content with input from the Coordinator of Mathematics, the math faculty, and the Head of the Division of Sciences and Mathematics
    c. assist students with creating a MyMathLab account
    d. program and maintain personal information quiz
    e. create and distribute a uniform syllabus to all sections
    f. program and maintain syllabus quiz
    g. program and maintain the content modules
    h. watch videos for quality
    i. design and maintain the secure pretests and quizzes
    j. change passwords once per week
    k. train other faculty members new to Modular Mathematics using the information in the QEP document
        i. create a MyMathLab account
        ii. assist new faculty with the operation of MyMathLab
        iii. verify that faculty are using MyMathLab as intended for grading
        iv. mentor new faculty or assign a veteran faculty member teaching in Modular Mathematics as a mentor for new faculty members
            1. maintain materials to be handed out for professional development prior to teaching
            2. collaborate with new faculty members to answer questions and discuss written responses to professional development questions
            3. recommend new faculty to the program to the Head of the Division of Sciences and Mathematics and Director of Developmental Education and Institutional Effectiveness and Institutional Effectiveness

4. assist faculty members for their first week in the classroom or lab teaching.
5. follow up with faculty members keeping journals and answering professional development questions as they begin to teach Modular Mathematics
6. Informally evaluate faculty members sending results to the Head of the Division of Sciences and Mathematics

l. program and maintain midterm exam
m. program and maintain final exam
n. provide student learning outcome data on pretest to the Head of the Division of Sciences and Mathematics and the Director of Developmental Education and Institutional Effectiveness
o. provide student learning outcome data from final exams to the Head of the Division of Sciences and Mathematics and the Director of Developmental Education and Institutional Effectiveness
p. schedule Modular Mathematics sections in cooperation with the Coordinator of Mathematics and the Director of Developmental Education and Institutional Effectiveness
q. collaborate with the Coordinator of Mathematics, the math faculty, and the Head of the Division of Sciences and Mathematics to coordinate content between developmental education and general education mathematics

2. (20%) Assist the Director of Developmental Education and Institutional Effectiveness with mathematics laboratory operations
a. establish hours of operation
b. tutor students
c. mentor new tutors
     i. maintain materials to be handed out for professional development prior to teaching
    ii. collaborate with new tutors to answer questions and discuss written responses to professional development questions
   iii. follow up with tutors keeping journals and answering professional development questions as they begin tutoring in the program
    iv. Informally evaluate tutors sending results to the Head of the Division of Sciences and Mathematics
d. set tutoring hours for each hired tutor
e. assess placement
f. manage technical issues and inoperable equipment
g. track student attendance by providing printouts to faculty
h. schedule operating hours
i. train student assistants
j. schedule student assistants
k. maintain and track laboratory and classroom usage data
l. perform other duties as assigned by the Office of Developmental Education and the Head of the Division of Sciences and Mathematics.

MINIMUM QUALIFICATIONS:
1. Master's degree from an accredited institution in mathematics.

Appendix F

![LSU EUNICE logo]

Office of Developmental Education ■ P.O. Box 1129 ■ Eunice, LA 70535
Phone (337) 550-1433 ■ FAX: (337) 550-1479
Pathways to Success M-207

August 29, 2013

Developmental Mathematics Tutor
Job Description

FUNCTIONS OF WORK:
The Developmental Mathematics Tutor(s) is a non-tenure track staff position that assists students in mathematics either in the mathematics laboratory or in the Modular Mathematics classroom. The tutor assists with the operation of the laboratory as required and as directed by the faculty. The position has dual reporting responsibilities to the Division of Sciences and Mathematics for the mathematics content and to the Office of Developmental Education for laboratory operations.

EXAMPLES OF WORK:
1. (80%) Work with the various constituencies who use the laboratory and computerized classrooms.
    a. Provide student assistance for students enrolled in MATH 0001 or MATH 0002.
        i. sign in and out of the laboratory
        ii. myLSUE
        iii. myCourses
        iv. MyMathLab and other course software
            1. registering and logging into software
            2. sequencing of material
            3. pre and post-tests
            4. passwords related to quizzes and tests
        v. tutor students
    b. Provide faculty assistance with
        i. gaining access to lab and computers
        ii. logistics within the laboratory
        iii. minor technical issues
        iv. accessing and printing attendance logs
2. (20%) Assists the Director of Developmental Education and Institutional Effectiveness with lab operations
    a. assess placement
    b. manage technical issues and inoperable equipment
    c. track student attendance by providing printouts to faculty
    d. schedule operating hours
    e. train student assistants
    f. maintain and track laboratory and classroom usage data

g. perform other duties as assigned by the Office of Developmental Education and the Head of the Division of Sciences and Mathematics.

MINIMUM QUALIFICATIONS:
1. Bachelor's degree from an accredited institution in mathematics or mathematics education.
2. Experience working with students in a high school or in an institution of higher education.