

Got math?

**2012-2013
Quality Enhancement Plan
Annual Report
Year One**

Grayson College's QEP, "Got math?" shows progress in achieving many of its objectives for the QEP during the first year of full implementation. Some of the most significant achievements include: (1) the development of pathways for students which has decreased the amount of time students spend in developmental mathematics and provides alternatives to College Algebra for students in degree programs which do not require College Algebra; (2) the pilot 0340 course averaged 17.25% points higher on the capstone exam as compared to students in the 0330 course previously offered; (3) an increase in the percentage of students completing their developmental math course in 2012 from 51.84% to 56% when compared to 2010; and (4) more than 85% of mathematics students are returning to use the Math Hub for supplemental instruction during a given semester. Other notable achievements include the reduction of mathematics anxiety in 16% of the developmental math students during the Fall 2012 semester; and nearly 14% of students in the Fall 2012 starting cohort either completing or enrolling in their college level course one year later. To support students with resources for study skills, the implementation of a Math Study Skills ancillary text has been added to the 0420 courses.

Challenges and opportunities identified in the first year of data include the following:

- A revision to the process for administration of the MAS-R Math Anxiety Survey to include: (1) faculty providing incentives to students only when they have completed both the pre-test and post-test assessment; (2) requiring students to enter their student ID when taking the survey; and (3) faculty receiving a report of math anxiety scores on the pre-assessment. These changes will allow the college to better track those students taking the assessments and to identify students who need additional student support services.
- Absenteeism continues to be an issue with developmental math students. The college is considering a mandatory attendance policy for developmental students as a component of its student success agenda.
- The College identified a target for objective 1.3.2 to be 75% of students will show an increase in their self-assessment on the Recipe for Success. While an initial desire for an increase in the self-assessment score was desirable, an unanticipated consequence of the use of the Recipe for Success instrument was a decline in the self-assessment scores and the possibility that students may have a better understanding of their deficiencies which affect their scores on the self-assessment. Further research into this phenomenon is necessary to determine whether the decrease in the self-assessment score is actually a negative issue.
- A need to improve the number of students (14%) progressing from their developmental math courses and into their college level course within one year. Further work toward this objective will include the identification of students for advising and encouragement from math faculty. An additional item for discussion is the consideration of a policy which mandates developmental math students must take their college-level math course the next full-semester following completion of their developmental math sequence.
- Current assessment of student attainment of the student learning outcomes for both the 0420 and 0340 rests on student performance on one question for each SLO. This will be reviewed for validity and possible revision of the assessment measure and a standardized departmental final exam is being considered.
- Student learning outcomes for the 0340 course have been revised in the Academic Course Guide Manual by the Texas Higher Education Coordinating Board and will be implemented Fall 2013. This will change the SLO's for 0340 from 3 to 7.
- Assessment of objective 2.1 is statistically flawed with a very small portion of Math Hub log in information being viable for analysis due to the current login system. A review of options for improvement in this tracking is necessary in order to be able to effectively and accurately account for student visits to the Math Hub for correlation with each individual student's final course grade.

In addition to the review of the annual QEP assessment data, a Math Summit was held on July 29, 2013 with key administrators and faculty in attendance. A review of data, changes in state mandates, and other challenges related to all developmental math courses was conducted.

Items for review included:

- Staffing and space needs for the Math Hub
- Office placement of math faculty in relation to the Math Hub and a need for full-time faculty to be closer the Hub for tutoring and assistance when possible.
- Math grading policy for new non-course based labs to Pass, In Progress, or Fail.
- ERP programming of math courses to ensure proper placement of students and ability of students to enroll in college-level math courses after completing the appropriate developmental math courses without advising.
- Advisement training for advisors and faculty with an updated flow chart
- Programming of two levels of TSI completion one for 0420 and one for 0340 depending on the college level course required for each degree program.
- The possibility of importing the new placement exam diagnostics into POISE or Estudios for use by faculty.
- The review of the ratio of part-time to full-time faculty teaching developmental courses.
- The need for further professional development for developmental math faculty.
- A review of college level math courses to align the discovery method employed in the developmental math courses to aid in student success in their college level math course as well.

Assessment data for each objective of the QEP is below. Grayson is confident that the first year of data for the QEP reflects progress on several fronts and the potential for even greater student success in the future related to developmental mathematics. On a positive note for Grayson, since the inception of its QEP, the Dana Center, at the University of Texas at Austin, has also begun conducting research on a "Mathways Project" which is focused on developing alternative pathways to college level mathematics similar to Grayson's "Got math?" project. Grayson College will be an Active Learning Site for the "Mathways Project" in the next phase of the Dana Center project.

Actionable Items:

The following is a list of actionable items for consideration by the College:

- Require all faculty to report students through the Academic Early Alert System.
- Require all developmental math courses to have a standardized final exam
- Purchase a swipe card system for the Math Hub to track usage
- Move math faculty offices closer to the Math Hub
- Provide faculty with a list of students math anxiety scores by the end of the third week of class
- Consider a mandatory attendance policy
- Consider mandating progression to college-level math course the next full semester after completing the developmental math sequence.
- Program POISE to recognize two levels of TSI completion based on major
- Update math advisors chart
- Provide training to advisors on math pathways and TSI changes
- Identify professional development opportunities for math faculty and adjuncts
- Develop cohort based data for each measure to better track the effectiveness of the QEP

Assessment Data

Goal 1: Increase the number of students who successfully complete the developmental math sequence.

Objective 1.1: Increase the five year average of students completing their developmental math sequence by 5%.

As a baseline for this measure, GC will consider the successful completion rates for each of the developmental courses in the sequence for the past five years. Successful completion is defined as a grade of C or better in the course.

Academic Years Ago – 2006-2010

	1	2	3	4	5	Average
MATH 0320	53.58%	56.82%	55.41%	51.49%	51.84%	53.80%

Academic Years Ago – 2012-2017

	1	2	3	4	5	Average
MATH 0420	56%					54.31%
MATH 0340	56%					56.00%

Because the MATH 0340 course is new and the pathways are different, tracking of the five year average for MATH 0340 will be compared year-to-year instead of a five year average until sufficient data is available to conduct a five year average comparison.

Objective 1.2: Reduce the mathematics anxiety of developmental math students.

The success rate for this objective will be a 25% reduction in mathematics anxiety as measured by a pre-course and post-course assessment.

Fall 2012	# of the Population	% of Population
Reduced Math Anxiety	131	37%
Remained the Same	61	17%
Increased Math Anxiety	161	46%
Total	353	100%

Fall 2012		
# with at least a 25% reduction in math anxiety	6	1.7%
# with at least a 15% reduction in math anxiety	22	6.2%
# with at least a 10% reduction in math anxiety	58	16.4%

Beginning with the Fall 2013 semester, all faculty will receive a score for each student taking the MAS-R in order to identify students who may need additional support and referrals to support services due to high math anxiety. We will track the efforts related to the use of the results to determine if continuing the use of the survey is an effective assessment.

Objective 1.3.1: Increase ownership of the educational process in developmental mathematics students.

The success rate for this objective, will be to see a 10% decrease in absenteeism of developmental math students.

Absenteeism Rates

Term	Fall 2011 Average # of Days Absent	Spring 2012 Average # of Days Absent	Fall 2012 Average # of Days Absent	Spring 2013 Average # of Days Absent
0310	11.07	10.76		
0320	10.19	10.39		
0330	7.32	7.18		
0310/0320/0330 Total	9.57	9.54		
0420	14.88	8.82	10.58	11.6
0340		12.88	5.91	9.82
0420/0340	14.88	11.97	9.61	11.09
All Courses	9.82	9.6	9.61	11.09
Change			-.04	-1.55
Targeted 10% Decrease			8.83	8.64

Objective 1.3.2: 75% of the students show an increase in their self-assessment scores on the Recipe for Success.

The determination of whether or not the Recipe for Success has been effective will be based on a comparison of the self-assessment scores for each student from the beginning of the course and the end of the course.

Fall 2012 Math 0420	Average RFS Beginning Score (n=227)	Average RFS Ending Score (n=227)	% Change in RFS beginning and ending score	% with a positive change in RFS (n=94)	% with a negative change in RFS (n=133)	Highest change in RFS (64 to 100) B	Lowest Change in RFS (92 to 51) B
	80.4	77.3	-3%	41%	58.5%	36	-41
Spring 2013 Math 0420	Average RFS Beginning Score (n=231)	Average RFS Ending Score (n=231)	% Change in RFS beginning and ending score	% with a positive change in RFS (n=122)	% with a negative change in RFS (n=96)	Highest change in RFS (66 to 100) A	Lowest Change in RFS (93 to 69) F
	78.96	79.31	0.35%	52.8%	41.5%	24	-24.1
Fall 2012 Math 0340	Average RFS Beginning Score (n=82)	Average RFS Ending Score (n=67)	% Change in RFS beginning and ending score	% with a positive change in RFS (n=29)	% with a negative change in RFS (n=53)	Highest change in RFS (55 to 100) D	Lowest Change in RFS (93 to 56.3) B
	83.1	78.1	-5.04	35.3	64.6%	45	-36.7
Spring 2013 Math 0340	Average RFS Beginning Score (n=138)	Average RFS Ending Score (n=92)	% Change in RFS beginning and ending score	% with a positive change in RFS (n=40)	% with a negative change in RFS (n=98)	Highest change in RFS (70 to 93) A	Lowest Change in RFS (80 to 52) D
	81.8	79	-2.8	28.9	71%	23	-28

Objective 1.4: Utilize a dedicated Mathematics hub for supplemental instruction of developmental mathematics students.

The success rate for this objective will be measured by tracking student usage of the Math Hub with 75% of the students who use the Math Hub returning to use it again.

Semester	# of Visits	# of Students	% of Returning Students
Fall 2012	9306	1088	86.7%
Spring 2013	7386	1065	85.5%

We will continue to encourage referrals to tutoring and supplemental instruction using the Academic Early Alert System. In the future we will track student success and analyze Math Hub usage as it relates to student success in the course. We have also added an expectation that assistant athletic coaches will serve in the Math Hub as appropriate to aid in the student log in process.

Objective 1.5: Within one year of completing their developmental mathematics sequence, students will progress onto and successfully complete their college-level mathematics course.

Fall 2012 to Spring 2013 Retention and Persistence

	Fall 2012	
Fall Cohort	835	
Enrolled in Dev Math Fall 2012	261	31%
Successfully completed a Dev Math course in Fall 2013	163	62%
Fall Cohort Dev Math Students Enrolled at the College for Spring 2013	186	71%
Fall Cohort Dev Math Students Enrolled Spring 2013 and in a MATH course	134	51%
Enrolled in dev math spring 2013	105	40%
Attempting college level math spring 2013/Summer 2013	29	11%
Fall Cohort Dev Math Students enrolled spring 2013 and not in a Math course	52	28%

Fall to Fall Retention and Persistence

	Fall 2012	Fall 2013
Fall Cohort Dev Math Students	261	
Enrolled at Grayson one year later		115 44%
Enrolled in Dev Math one year later		39 14.9%
Enrolled in College Level Math on year later		24 9%
Completed College Level		12 4.5%
Should be enrolled in Dev Math and are not		10 3.8%
Need College Level Math		21 8%
Certificate Seeking no longer need dev math		6
Dev Math Exempt - enrolled in INRW		2
Completed Summer 2013		1
		115

A list of students who have either completed their developmental math sequence and are ready for college-level math or are in need of their next developmental math course will be developed at the end of each semester for faculty and advisors to contact students for advising and encouragement to enroll in the next math course as soon as possible.

Goal 2: 70% of developmental mathematics students will attain at least 70% of the student learning outcomes for their developmental mathematics courses.

COURSE	NUMBER OF STUDENTS ENROLLED IN COURSE	NUMBER OF STUDENTS ACHIEVING 70% OF STUDENT LEARNING OUTCOMES	% ACHIEVING 70% OF STUDENT LEARNING OUTCOMES
0420 Fall 2012	333	140	42%
0420 Spring 2013	235	133	57%

	NUMBER OF STUDENTS ENROLLED IN COURSE	NUMBER OF STUDENTS ACHIEVING 66% OF STUDENT LEARNING OUTCOMES	% ACHIEVING 66% OF STUDENT LEARNING OUTCOMES
0340 Fall 2012	91	37	41%
0340 Spring 2013	149	48	32%

Objective 2.1: Develop a dedicated mathematics lab for supplemental instruction of developmental mathematics students. Students who use the Math Hub will see an increase in the attainment of the Student Learning Outcomes for Math 0420 and Math 0340/0140.

Due to several factors related to the current student login system for the Math Hub, an analysis of this objective is not available this year. Students currently log into the system by keying in their student ID or name and there is no quality control of this log in. Students can key in random numbers and/or make a data entry error causing their math hub visit to not be attributed to them.

Objective 2.2: Redesign the current developmental sequence and courses

The results of this baseline developmental math capstone exam will be used to measure the success of Math 0340/0140 in preparing students for college algebra as compared to Math 0330.

0340 Capstone Comparison

Spring 2012	# of Students taking Capstone Exam	Average Test Score
0330	119	23.75%
0340 (Pilot Group)	17	41%

Math 0340 Success Rate Comparison

Subject	Course Number	2011 Fall	2012 Fall
		Success Rate	Success Rate
MATH	0330	54%	
	0340		64%

The only assessment of this object was achieved with the 0340 pilot group averaging 41% on the capstone exam which represents an increase of 17.25% over the 0330 students. As evidence of the increased success of students in the 0340 course, the success rate for the fall 2012 0340 course is 10% higher than the fall 2011 0330 course.