Bergen
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PROGRAM REVIEW

A PROCESS FOR

SELF-EVALUATION

AND

CONTINIOUS IMPROVEMENT

DEVELOPMENTAL MATHEMATICS

2013-2014

Bergen Community College

PROGRAM: DEVELOPMENTAL MATHEMATICS

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DATE OF THIS REPORT: October 9, 2014

PERIOD OF YEARS BEING REVIEWED: Spring 2012 - Spring 2014

OVERVIEW

In 2007, the Bergen Community College Mathematics Department split into two separate departments, College Level and Developmental Mathematics.

The Developmental Mathematics Department consisted of MAT-011, Basic Math, which was 1 semester and 3 credits. Also included was MAT-035, Elementary Algebra, which was 1 semester and 4 credits; or MAT-031 and 032, Elementary Algebra A & B, which was 2 semesters and 3 credits each. Most students were placed into MAT-011, 031 and 032. (3 semesters)

After our split, our initial assessment in 2007 showed:

- a pass rate of approximately 43% in all Developmental Mathematics courses
- a large attrition rate as students progressed through the developmental sequence and
- a low pass rate for students exiting the "gate way" college level classes of MAT-130 Contemporary Math, MAT-150 Statistics I and MAT-160 Intermediate Algebra.

Our initial objectives were to:

- Increase the pass rates in Basic Mathematics and Elementary Algebra
- Individualize instruction so students could progress at their own pace
- Shorten the length of time needed to complete the Developmental Math sequence
- Better prepare students for college level classes

Summary of Significant Developmental Mathematics Since Last Program Review

1. For students needing extra support based on their Accuplacer test score of 20-29, students register for MAT-011 with a linked support MAT-010.
2. For students who are able to accelerate, based on their Accuplacer test score of 60-76, students register for a one credit arithmetic course, MAT-012 with a linked algebra course. Their algebra course will depend on their algebra placement score. This accelerated program allows students to complete their developmental coursework in one or two semesters depending on their algebra placement.

3. Using the Emporium Model of Course Re-design we created our guided self-paced math classes located in Math Hub in Tec-114. These courses were built online and allow the students to progress at their own pace. They require a pre-set mastery for each topic before being able to move on to the next topic. Students are allowed to accelerate and complete up to three courses in one semester. Students can use our annex for tutoring purposes and to take a proctored exam. The annex is located in Tec-114A which is open Monday through Friday from 9-7 and Saturdays from 10-3:00.
4. Our second chance program was created for students who received a 60-69 as their final average but have worked diligently all semester. They are given two weeks during the break to work on the course and retake the final to achieve a passing grade of above 70%.
5. The Safety-Net Program was designed for students registered in a math course but in the first month of classes the professor felt the student was not grasping the material. Reasons could include illness, extended absence, due to personal matters, or needing more time on task. By recommendation of the Professor, students could re-enroll in the Safety- Net Program conducted in the self-paced format in the Math Hub. This gave the student a new start.
6. In the spring of 2013, we added a 7 week Late Start Class, which was a Basic Math class. In the fall of 2013, we started offering all Developmental Math classes in a 12 and 15 week format at all the campuses.
7. In the spring of 2013, we offered an online option for all Developmental Math courses offered.

Further assessment of pass rate and attrition rates has led us to implement the following two path career initiative which will be in place in the fall of the 2014 semester.

Students will take the Accuplacer Test, and depending upon their major, will be placed into MAT-011 Basic Math, for 1 semester and 3/4 credits; MAT-040 Algebra for Liberal Arts, for 1 semester and 4 credits or MAT-048 Algebra for students needing Intermediate Algebra, for 1 semester and 5 credits. MAT-040 will be the bridge course for students who change their major from Liberal Arts to the Calculus path. This will shorten the developmental sequence to 2 semesters. The topics added to both new courses where selected in partnership with College Level faculty. We are hoping that these added topics and different pathways will strengthen the students' background before they enter their college level course. Students will spend less time in Developmental Math and hopefully improve the attrition rate as well as the graduation rate.

FOCUS ON STUDENTS

Student Demographics

When looking at the student body of the Developmental Mathematics Department, many demographics should be observed. Tables 1a-d show enrollment patterns of students in the Developmental Mathematics Departments starting with Spring of 2012 through Fall of 2013. Total students for each course were obtained as well as a breakdown of students who registered for Self-Paced (T- Sections) and Traditional Courses (Non T-Sections).

Table 1a: Enrollment MAT-011

MAT-011	Non T-Sections Enrolled	T-Sections Enrolled	Total Enrolled
Spring 2012	776	146	922
Fall 2012	1,447	220	1667
Spring 2013	717	72	789
Fall 2013	1,162	349	1511
All Semesters	**4,102**	**787**	**4889**

Table 1b: Enrollment MAT-031

MAT-031	Non T-Sections Enrolled	T-Sections Enrolled	Total Enrolled
Spring 2012	1,102	211	1313
Fall 2012	948	124	1072
Spring 2013	951	218	1169
Fall 2013	676	245	921
All Semesters	**3,677**	**798**	**4475**

Table 1c: Enrollment MAT-032

MAT-032	Non T-Sections Enrolled	T-Sections Enrolled	Total Enrolled
Spring 2012	650	116	766
Fall 2012	626	135	761
Spring 2013	627	118	745
Fall 2013	392	288	680
All Semesters	**2,295**	**657**	**2952**

Table 1d: Enrollment MAT-035

MAT-035	Non T-Sections Enrolled	T-Sections Enrolled	Total Enrolled
Spring 2012	403	0	403
Fall 2012	382	26	408
Spring 2013	349	22	371
Fall 2013	371	25	396
All Semesters	**1,505**	**73**	**1578**

Overall enrollment patterns of students show that our two most popular courses in the Developmental Mathematics Department are MAT-011 (Basic Math) and MAT-031 (Basic Algebra). MAT-011 consistently has the highest enrollment in the DMAT department for the fall semesters and MAT-031 for spring semesters. Non T-Sections (Traditional courses taught with a lecture style vs. self-paced computer courses) have the highest enrollment for all semesters shown. However, T-Sections generally have increased in enrollment for each semester. The only exception being MAT-035 which had constant enrollment patterns since it became offered in Fall 2012.

For Spring of 2012, the DMAT Department had a total enrollment for all courses of 3,404 students. Fall 2012 had a total enrollment for all courses of 3,908 students. In addition, Spring 2013 had 3,074 total students enrolled while Fall 2013 had a total enrollment for all classes of 3,508 students. Enrollment is consistently higher for fall semesters. Comparing Spring semesters, enrollment dropped by 330 students from Spring of 2012 to Spring of 2013. For Fall semesters, enrollment dropped by 400 students from Fall 2012 to Fall 2013.

According to the Annual Institutional Profile of 2013 produced by Bergen Community College, the total enrollment in Fall of 2012 was 17, 015 students. This number included full and part time students. This means that 22.97% of all students enrolled at Bergen Community College were enrolled in a Developmental Mathematics class during Fall of 2012.

Chart 1e shows the total number of first time, full time students enrolled in remediation courses by subject area for Fall of 2012.

Chart 1e

Subject Area	Number of FTFT Enrolled	Percent of all FTFT Enrolled
Computation	1,123	42.0%
Algebra	352	13.2%
Reading	0	0.0%
Writing	0	0.0%
English*	1,603	59.9%

*English Basic Skills includes reading and writing component

Source: SURE Fall enrollment file

This chart shows that 42.0% of all first time students enrolling full time at Bergen Community College enroll in MAT-011 while 13.2% of students first time, full time students are enrolled in an Algebra course (MAT-031 or MAT-035). Therefore, 55.2% of all first time students who are enrolling at Bergen Community College as full time students will be enrolled in a DMAT math course.

Table 2a shows the enrollment of total students in Developmental Math Courses based on Race/Ethnicity for each of the four previous semesters (Spring 2012-Fall 2013).

Table 2a: Race/Ethnicity Demographics

	Non T-Sections Enrolled	T-Sections Enrolled	Total Enrolled	Percent of Total to Enrolled %
Spring 2012				
Am. Indian/Alaska Native	6	1	7	<1%
Asian	102	23	125	3.7%
Black/African American	253	54	307	9%
Hispanic, all races	917	157	1074	31.6%
Hawaiian/Pacific Islander	7	0	7	<1%
Two or more races	25	6	31	<1%
White	1076	142	1218	35.8%
Unknown Race/Ethnicity	545	90	635	18.7%
TOTAL	**2931**	**473**	**3404**	**100%**
Fall 2012				
Am. Indian/Alaska Native	7	1	8	<1%
Asian	114	22	136	3.5%
Black/African American	260	52	312	8%
Hispanic, all races	1058	164	1222	31.2%
Hawaiian/Pacific Islander	11	3	14	<1%
Two or more races	38	7	45	1.2%
White	1132	148	1280	32.8%
Unknown Race/Ethnicity	783	108	891	22.8%
TOTAL	**3403**	**505**	**3908**	**100%**
Spring 2013				
Am. Indian/Alaska Native	8	0	8	<1%
Asian	95	13	108	3.5%
Black/African American	232	32	264	8.5%
Hispanic, all races	768	138	906	29.5%
Hawaiian/Pacific Islander	11	2	13	<1%
Two or more races	24	7	31	1%
White	870	127	997	32.4%
Unknown Race/Ethnicity	636	111	747	24.3%
TOTAL	**2644**	**430**	**3074**	**100%**
Fall 2013				
Am. Indian/Alaska Native	3	3	6	<1%
Asian	101	41	142	4%
Black/African American	193	65	258	7.4%
Hispanic, all races	744	278	1022	29.1%
Hawaiian/Pacific Islander	9	2	11	<1%
Two or more races	33	8	41	1.1%
White	792	265	1057	30.1%
Unknown Race/Ethnicity	726	245	971	27.7%
TOTAL	**2601**	**907**	**3508**	**100%**

Enrollment for the Developmental Mathematics Department shows a diverse student body is being represented. In DMAT courses, for the last four semesters, the most represented race/ethnicity were students who identified themselves as white. The percentage of students who identified themselves as white ranged from 30.1-35.8% for the last four semesters. For each semester, the second most represented race/ethnicity were students who identified themselves as Hispanic, all races (a range of

29.1-31.6% of DMAT population). The third most enrolled race/ethnicity were those that identified themselves as Unknown (range of 18.7-27.7% for all four semesters). Students who identified themselves as Black/African American were the fourth most enrolled with percentage of enrollees varying from 7.4-9% for the four semesters.

Table 2b shows the enrollment of students at Bergen Community College based by Race/Ethnicity for Fall 2012.

2b: Enrollment by Race/Ethnicity

	White		Black		Hispanic		Asian*	
	Enrolled	%	Enrolled	%	Enrolled	%	Enrolled	%
Total	5,826	34.2%	1,011	5.9%	4,142	24.3%	1,238	7.3%
	American Indian		**Non-Resident Alien**		**Race Unknown***		**Total**	
	Enrolled	%	Enrolled	%	Enrolled	%	Enrolled	%
Total	25	0.1%	1,228	7.2%	3,545	20.8%	17,015	100%

* Note: Asian includes Pacific Islanders and Unknown includes 2 or More Races.
Source: IPEDS Fall Enrollment Survey

The student body based on ethnicity/race of the DMAT program compares to the overall population of Bergen Community College. While percentages varied slightly, each representation of each race was consistent by each race/ethnicity. The only exception being that students identifying themselves as Asian represent 7.3% of the entire school body, while only composing of 3.5% of the DMAT population.

Table 2c Shows the demographics of students enrolled in Developmental Math Courses at Bergen Community College based on age by semester. The four previous semesters (Spring 2012-Fall 2013) are shown.

Table 2c: Student Demographics Based on Age

	Non T-Sections Enrolled	T-Sections Enrolled	Total	Percentage of study body
Spring 2012				
Up to 21 years	2005	352	2357	69.3%
22-24 years	395	59	454	13.3%
25-34 years	340	39	379	11.1%
35 and older	191	23	214	6.3%
TOTAL	**2931**	**473**	**3404**	**100%**
Fall 2012				
Up to 21 years	2563	382	2945	75.4%
22-24 years	399	62	461	11.8%
25-34 years	286	43	329	8.4%
35 and older	155	18	173	4.4%
TOTAL	**3403**	**505**	**3908**	**100%**
Spring 2013				
Up to 21 years	1838	336	2174	70.7%
22-24 years	379	50	429	14%
25-34 years	273	27	300	9.8%
35 and older	154	17	171	5.5%
TOTAL	**2644**	**430**	**3074**	**100%**

Fall 2013				
Up to 21 years	1996	679	2675	76.3%
22-24 years	301	102	403	11.5%
25-34 years	211	84	295	8.4%
35 and older	93	42	135	3.8%
TOTAL	**2601**	**907**	**3508**	**100%**

For all semesters shown, the most represented group of students is those who are 21 years and under. The least represented group is students who are 35 and older. While enrollment totals for most age groups steadily dropped, the Up to 21 years group fluctuated from semester to semester.

Table 2b shows the demographics of students enrolled at Bergen Community College in Fall of 2012 by age.

2d: Bergen Community College Enrollment by Age

	Enrollment	Percent
Up to 21 years	9,118	53.6%
22-24 years	3,142	18.5%
25-34 years	3,041	17.9%
35 and older	1,714	10.1%
TOTAL	**17,015**	**100%**

Table 2d shows that the most represented age for students at Bergen Community college is up to 21 years. Students 22-24 were second most represented followed by 25-34 and 35 and older, respectively. In Fall 2012, enrollment patterns in DMAT students followed a similar trend but students up to 21 years were more much more represented at 75.4% of the DMAT body in comparison with 53.6% of Bergen Community College's population. This could be due to earlier data which showed that a large percentage of first time, full time enrolled students enroll in DMAT math courses (55.2% of student body).

Table 2e shows how many students enrolled in Developmental Mathematics received need based financial aid in Spring 2012, Fall 2012 and Spring 2013. It includes students registered in MAT-011, MAT-031, MAT-032 and MAT-035.

2e: Students who Receive Financial Aid

	Non T-Sections	T-Sections		
	Enrolled	Enrolled	Total	Percent of Students
Spring 2012				
Did not receive Financial Aid	1273	175	1448	42.5%
Received Financial Aid	1658	298	1956	57.5%
TOTAL	**2931**	**473**	**3404**	**100%**
Fall 2012				
Did not receive Financial Aid	1652	212	1864	47.7%
Received Financial Aid	1751	293	2044	51.3%
TOTAL	**3403**	**505**	**3908**	**100%**
Spring 2013				
Did not receive Financial Aid	1215	189	1404	45.7%
Received Financial Aid	1429	241	1670	54.3%
TOTAL	**2644**	**430**	**3074**	**100%**

The chart shows that the majority of our students, for all semesters received need based financial aid.

The Developmental Mathematics Department at Bergen Community College offers support classes for students. Students placed in MAT-010 are also enrolled in MAT-011. Traditionally, students in MAT-010 are those identified as most "at risk" with lower placement scores than their peers. Students enrolled in MAT-033 and MAT-034 are also enrolled in MAT-031 and MAT-032, respectively. These students are traditionally repeating the course.

Tables 3a-c show the number of students who enrolled in MAT-010, MAT-033, and MAT-034 for the previous four semesters (Spring 2012 – Fall 2013).

Table 3a: Enrollment MAT-010

Term	MAT-010 Enrollment
Spring 2012	226
Fall 2012	492
Spring 2013	209
Fall 2013	432
All Semesters	**1,359**

Table 3b: Enrollment MAT-033

Term	MAT-033 Enrollment
Spring 2012	75
Fall 2012	69
Spring 2013	53
Fall 2013	44
All Semesters	**241**

Table 3c: Enrollment MAT-034

Term	MAT-034 Enrollment
Spring 2012	38
Fall 2012	42
Spring 2013	44
Fall 2013	29
All Semesters	**153**

The data shows that MAT-010 is the most common support class. In Fall Semester of 2013, 432 out of the 1511 students enrolled in MAT-011 also took MAT-010 (28.6%).

Students who perform with scores close to the score cutoff for MAT-011 on the Accuplacer placement exam can choose to take MAT-012. MAT012 can be taken simultaneously with MAT-031 and is a refresher course for students to improve their basic math skills. MAT-012 students' work independently on MyMathTest, a computer based program.

Table 4a shows the number of students who enrolled in MAT-012 for the previous four semesters (Spring 2012 – Fall 2013).

Table 4a: Enrollment MAT-012

Term	Enrolled
Spring 2012	113
Fall 2012	236
Spring 2013	143
Fall 2013	224
All Semesters	**716**

The data shows that students enrolled in MAT-012 are a small percentage of the total DMAT student body (6.4% for Fall of 2013). However, the department still works with these students to allow them to complete their program requirements as quickly as possible.

Student Satisfaction

Student Satisfaction is an extremely important area for our department to focus on. It allows students to voice their opinions on how the subject matter is being taught, implemented, and how we are connecting with our students. Retention of students is also closely connected to student satisfaction. By meeting and exceeding student expectations of reaching their educational goals, they are much more likely to continue their educational experience and remain at the college.

One consideration is that many of our students are not voluntarily taking DMAT classes. Students may come in with negative attitudes based on previous experiences in mathematics or unhappy they are not receiving credit for the class. This is an additional challenge that the DMAT department must take into account.

To measure student satisfaction, an anonymous electronic survey was sent to students and student focus groups were held.

The survey consisted of 10 questions that were sent to students electronically. The survey was given both during the Fall 2013 semester and Spring 2014 semester. It was electronically emailed to students in Fall 2013 using their emails used to register for MyMathLab. Professors were also strongly encouraged to email students and remind them to take the survey. For Spring 2014, the survey was assigned directly in MyMathLab as an assignment by the professor of each class. For Fall of 2013, 562 of 3,508 students enrolled in DMAT courses responded to the survey. In Spring of 2014, responses increased by 53 responses. Though there was an improvement, effort will need to be continued to increase responses by students.

As we can see, the majority of students who completed the survey are employed either part or full time. Many of our students have commitments outside of class. This is reflective of the diverse student population we have. Our students face a number of outside factors that can affect their ability inside the classroom. Also, we can see that the majority of students who completed the survey are also full time students.

What type of resources have you used outside of class to help with your Developmental Math Class? (Check all that apply)	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
I have attended a one-on-one session in the tutoring center	21.4%	120	14.6%	90
I have gone to the Math Walk-In	15.3%	86	8.4%	52
I go to the Math Hub	27.9%	157	13.5%	83
I have attended workshops	2.1%	12	1.1%	7
I have gone to my professor's office hours	13.0%	73	8.6%	53
I have not received any outside support	47.7%	268	67.9%	418
Answered Question	**562**		**616**	
Skipped Question	**0**		**0**	

For students that participated in the survey, 47.7% and 67.9% did not receive additional support outside the classroom for the fall and spring semester, respectively. The higher number of students who did not receive help in the spring semester may be attributable to when the survey was given. In the fall semester, the survey was distributed at the very end of the semester and for spring it was completed about half way through. Based on the large percent of students not receiving help, this is an area that the department can focus on to improve student satisfaction. It is important all students are aware and reminded of the many different opportunities provided to them to receive support outside of the classroom. In particular, the low percentage of students attending workshops should be addressed. Faculty should continually remind students in class and send out emails of upcoming workshops. Creating announcements on MyMathLab when students sign in would also help remind students of the support.

How much work do you do outside of class for your Developmental Math Class?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Less than one hour a week	13.6%	76	14.8%	91
1-3 hours a week	52.4%	293	56.6%	347
3-5 hours a week	24.2%	135	21.0%	129
5-7 hours a week	6.3%	35	4.2%	26
More than 7 hours	3.6%	20	3.3%	20
Answered Question	**559**		**613**	
Skipped Question	**3**		**3**	

The majority of students, 52.4% and 56.6% respectively, are completing 1-3 hours of work outside of class. The second largest percent are completing 3-5 hours. The percentages between the two semesters are comparable with each other. Considering, all homework is completed online and thus must be done outside of class, the percentage of students who work less than one hour a week is concerning. Efforts should be made to teach students proper study skills to help them be successful.

How satisfied are you with your Developmental Math Classes at BCC?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Very Dissatisfied (1)	5.5%	31	2.8%	17
Dissatisfied (2)	10.2%	57	5.4%	33
Satisfied (3)	49.6%	278	56.6%	347
Very Satisfied (4)	34.6%	194	35.2%	216
Answered Question	**560**		**613**	
Skipped Question	**2**		**3**	
Rating Average (1-4)	**3.13**		**3.24**	

The majority of students at BCC are satisfied with their experience in developmental level math classes. In the fall semester, 49.6% were satisfied while 34.6% were very satisfied. The average rating was 3.13. In the spring semester 56.6% were satisfied and 35.2% were very satisfied. The average rating was 3.24. The high overall percent of students satisfied with their experience in the developmental mathematics department was consistent in both semesters. This is an extremely positive sign that students are happy with their experience in the developmental department.

How satisfied are you with your experience using MyMathLab?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Very Dissatisfied (1)	5.4%	30	3.1%	19
Dissatisfied (2)	10.9%	61	6.3%	38
Satisfied (3)	52.9%	296	56.6%	343
Very Satisfied (4)	30.9%	173	34.0%	206
Answered Question	**560**		**606**	
Skipped Question	**2**		**10**	
Rating Average	**3.09**		**3.21**	

MyMathLab is an integral component of DMAT. Every class is required to use it for learning purposes; including homework. The satisfaction levels for MyMathLab mirror the satisfaction levels for DMAT courses. This relation is not surprising considering how important MyMathLab is to the overall structure of the class. Because MyMathLab is such an important tool for student learning, it is necessary for them to have a satisfactory experience using the program. These results show that student experiences have been positive which may motivate them to be more engaged learners.

When using MyMathLab, how satisfied are you with the tools given (Help Me Solve This, Videos, Links, the Text, Ask My Instructor, etc.)?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Very Dissatisfied (1)	3.2%	18	3.3%	20
Dissatisfied (2)	9.9%	55	5.2%	32
Satisfied (3)	51.0%	284	49.7%	303
Very Satisfied (4)	35.9%	200	41.8%	255
Answered Question	**557**		**610**	
Skipped Question	**5**		**6**	
Rating Average	**3.2**		**3.3**	

MyMathLab has a number of fantastic features to help students with the problems they are encountering. This includes being able to be guided through similar problems, access videos on the topic, and many other tools to help the students succeed. We feel the satisfaction with these tools is directly connected with the students overall satisfaction of MyMathLab.

How would you rate your interactions with your professor?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Very Dissatisfied (1)	3.7%	21	2.0%	12
Dissatisfied (2)	5.0%	28	3.0%	18
Satisfied (3)	35.6%	200	35.2%	214
Very Satisfied (4)	55.7%	313	59.9%	364
Answered Question	**562**		**608**	
Skipped Question	**0**		**8**	
Rating Average	**3.43**		**3.53**	

Student satisfaction is inevitably linked to the students experience with their professor in the classroom. Faculty interactions with students have a major impact on how students view the material and class. Many of these students are entering these classes with negative contexts from past experiences in math courses. Overall, students are extremely satisfied with their professors. The majority of students in both semesters were very satisfied with their interactions with their professor. This data is reflective of the positive environment and work that faculty are cultivating in their classroom.

Does this math class cause you to feel anxious?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Always	14.3%	80	8.2%	50
Sometimes	41.9%	234	43.3%	263
Hardly Ever	43.7%	244	48.4%	294
Answered Question	**558**		**607**	
Skipped Question	**4**		**9**	

Math anxiety can be described as the feelings of uneasiness and anxiety that math creates for some students. It can be caused by a number of factors, including past negative experiences with mathematics. This can lead to test anxiety, math avoidance, and other problems. From personal experiences with our students, we know this is a real problem that we must consider and acknowledge. As we can see, the majority of students suffer some form of anxiety throughout the semester. While out of those, 14.3% and 8.2% suffered severe anxiety related to math.

How easy or difficult has this course been?	Fall 2013		Spring 2014	
Answer Options	**Response Percent**	**Response Count**	**Response Percent**	**Response Count**
Extremely Difficult (1)	6.4%	36	3.6%	22
Moderately Difficult (2)	37.7%	211	34.8%	213
Moderately Easy (3)	45.5%	255	52.8%	323
Extremely Easy (4)	10.4%	58	8.8%	54
Answered Question	**560**		**612**	
Skipped Question	**2**		**4**	
Rating Average	**2.6**		**2.67**	

Overall the majority of students, 45.5% and 52.8% found the course work to be moderately easy. While the next largest group of 37.7% and 34.8% found the course work to be moderately difficult. This shows that the majority of students are being challenged without feeling as though the work is overwhelming.

In addition to an online survey, three focus groups were held to accommodate student schedules. Two were held at the Paramus campus and one at the Meadowlands campus. Students were asked a variety of classes to gain an understanding of their experience taking Developmental Mathematics courses. Both traditional and self-paced (T Section) students were part of the focus groups.

During all focus groups, students said they were generally pleased with their experience taking developmental math courses. All students agreed that their professors were very good at explaining topics. They said they felt as though their teachers tried to show many different ways to solve a problem (which they liked) and that it was a great way for students to remember or relearn material with which they once struggled. Students also agreed that their professors were approachable. They said they felt comfortable attending office hours or asking a teacher a question after class. The students who had never attended office hours said they would feel comfortable, they just didn't need help.

When asked about other support, students said that their teachers explained where to get help (the tutoring center, math walk-in and office hours) and would feel comfortable using support if necessary. Students said that for the most part, tutors were helpful. Although one student did say they didn't like one tutor's teaching style, so went to another tutor and found that tutor to be more helpful.

Students were asked about the MyMathLab program used for homework in traditional courses and homework, quizzes and tests for self-paced courses. Students in traditional courses had mixed feelings about MyMathLab. Half of the students said they enjoyed the website as it gave them immediate feedback and gave them different resources when struggling with problems. Students said they liked seeing their homework grades immediately and thought the practice was useful.

The other half of students said they wished that the homework was on paper because that is the method homework was done in high school and they preferred it. However, these students did agree that immediate feedback on particular problems can be helpful and encouraging. Self-paced students all said that they liked the format of MyMathLab. Students in MAT011 liked the opportunity to take a Pretest to "pass out" of a chapter if they knew the material. Algebra students said they enjoyed the Quick Check Homework Review because they felt it helped sharpen their skills before taking a test. All self-paced students said that input of answers can be frustrating on MyMathLab at first, but eventually taught them to read the question better. When asked, all students agreed that MyMathLab was user friendly and as easy to use, if not easier, than other course websites (Moodle, etc.).

When asked about the pace of DMAT courses, there was a large difference in responses from Traditional to Self-Paced Students. Traditional students all said that they understood their teachers had to teach a certain amount of material. They added by agreeing that at times, the pace can be too fast for them or too slow. If it is too fast, they feel discouraged and if too slow, they get bored and stop paying attention. They said they would enjoy taking a class at their own pace. Self-paced students all loved the ability to work at their own pace. They were excited about the opportunity to finish more than one class in a semester and agreed that option was a motivating feature of self-paced courses. Self-paced students said that sometimes staying on track can be difficult and that having a teacher there to motivate and encourage them to stay on track was essential to their success.

When asked about test anxiety, all students in the focus groups said their anxiety was higher for math tests than any other subject. They said it is because a problem is either "right or wrong" and it is intimidating. Many also said they had failed at math in the past and were afraid that they would fail again. Traditional students complained that different professors have different policies for make-up exams. One student explained that after having a professor who allowed retakes, she assumed it would be true for her future math teachers which ended up hurting her grade. Students in Self-Paced courses said their anxiety in math had lowered since taking a self-paced class. They said that the program taught them how to prepare better for tests and the course "forced" them to study and stay on top of their work. When asked about retaking exams in self-paced classes, students said that they enjoyed reviewing their tests and making corrections. They said that they had pride in problems they did correctly then worked to understand those they did incorrectly. Self-paced students said test corrections helped them understand material better. Traditional students said that unless a teacher required it, they did not make corrections on exams. Most said they only look at the grade and do not review mistakes.

When asked about asking questions in class, traditional course students said that they would feel comfortable asking questions sometimes. They also said they would not want to ask too many questions because they might "seem dumb". Traditional course students said they would feel more comfortable asking a professor a question after class. Self-paced students said that they are comfortable asking a professor or tutor questions during class. One student explained that their teacher walks around checking on each student so frequently, "You feel like you need to ask questions each time".

When asked whether the material learned would be useful for future classes or their career path, students had mixed responses. Most agreed that MAT011 would be useful for real life applications in class, although some mentioned they would always have a calculator at hand. Students said that they felt some basic algebra was useful but that they didn't see themselves doing the extremely difficult things (rational expressions, etc.) after this class. They said doing math they "knew" wouldn't be used after this class could be discouraging and frustrating. Only one student was a

science major. She said that she thinks she will use all the material in future classes or her career. She said if she didn't use the math, the learning process would at least help her in the future.

Students at the Meadowlands campus expressed their extreme desire to have self-paced courses offered at their campus. All students at the focus group said they would pick a self-paced class vs. a traditional, if given the option. Students at Meadowlands also said they enjoyed being able to take a 15 week course in Spring of 2014. The Meadowlands Campus is traditionally a 12 week semester. DMAT offered a 15 month option in Spring of 2014 which allowed students to work on math before other courses started. They explained focusing just on math for the three weeks allowed them to strengthen their skills and study habits. They also liked having more time to complete the course.

Learning Outcomes and Assessments

Each course offered by the Developmental Mathematics Program (MAT011, MAT031, MAT032 and MAT035) has a department made final which is given to each student taking the course. Each semester, a committee reviews each final and makes corrections to ensure students are being challenged and tested on objectives of the course. The final exam accounts for 25 % of each student's overall grade. Students also must meet a minimum grade on the final in order to pass the class. Students in traditional courses must receive at least a 55% on the final exam and students in Self-Paced (T) sections must receive at least a 60% on the final exam. In addition, all students must receive an overall average of at least 70% in the class.
Assessment for student learning within the department is obtained through studies based on three objectives shown on the final. For the complete analysis of the assessment report, please see the attached assessment report at the end of this section.

Student Success

Student Success for our department can be measured by pass rates in classes as well as pass rates in college courses after the completion of DMAT courses.

MAT-012, a course usually offered in conjunction with MAT-031, is for students that have placement exam scores very close to the cutoff point for MAT-011. Students can choose to register for MAT-012 while taking MAT-031 to brush up on their basic math skills instead of taking MAT-011. MAT-012 is an independent learning, one credit course. In order to pass MAT-031, students that are co-registered must also pass MAT-012.

Table 7 shows the number of students who enrolled in MAT-012 and the number of students who passed MAT-012 for the previous four semesters (Spring 2012 – Fall 2013). Students who received a letter grade ranging from A to C were considered to have passed the course.

Table 7: Pass Rates, MAT-012

Term	Enrolled	Passed	Pass Rate
Spring 2012	113	94	83.2%
Fall 2012	236	191	80.9%
Spring 2013	143	114	79.7%
Fall 2013	224	181	80.8%
All Semesters	**716**	**580**	**81.0%**

MAT012 pass rates range from 79.7-83.2% for the last four semesters. MAT-012 is a good option for students who would like to finish their DMAT courses quickly. The MAT-012 course is very successful based on pass rates.

Tables 8a – 8d show how many students enrolled in and passed MAT-011, MAT-031, MAT-032, and MAT-035 in each of the four previous semesters (Spring 2012 – Fall 2013). Students who received a letter grade ranging from A to C were considered to have passed the course.

Table 8a: Pass Rates MAT-011

MAT-011	Non T-Sections			T-Sections		
	Enrolled	Passed	Pass Rate	Enrolled	Passed	Pass Rate
Spring 2012	776	443	57.1%	146	63	43.2%
Fall 2012	1,447	923	63.8%	220	126	57.3%
Spring 2013	717	408	56.9%	72	42	58.3%
Fall 2013	1,162	743	63.9%	349	232	66.5%
All Semesters	**4,102**	**2,517**	**61.4%**	**787**	**463**	**58.8%**

Table 8b: Pass Rates MAT-031

MAT-031	Non T-Sections			T-Sections		
	Enrolled	Passed	Pass Rate	Enrolled	Passed	Pass Rate
Spring 2012	1,102	627	56.9%	211	113	53.6%
Fall 2012	948	532	56.1%	124	61	49.2%
Spring 2013	951	575	60.5%	218	148	67.9%
Fall 2013	676	389	57.5%	245	147	60.0%
All Semesters	**3,677**	**2,123**	**57.7%**	**798**	**469**	**58.8%**

Table 8c: Pass Rates MAT-032

MAT-032	Non T-Sections			T-Sections		
	Enrolled	Passed	Pass Rate	Enrolled	Passed	Pass Rate
Spring 2012	650	416	64.0%	116	71	61.2%
Fall 2012	626	398	63.6%	135	84	62.2%
Spring 2013	627	388	61.9%	118	79	66.9%
Fall 2013	392	271	69.1%	288	175	60.8%
All Semesters	**2,295**	**1,473**	**64.2%**	**657**	**409**	**62.3%**

Table 8d: Pass Rates MAT-035

MAT-035	Non T-Sections			T-Sections		
	Enrolled	Passed	Pass Rate	Enrolled	Passed	Pass Rate
Spring 2012	403	252	62.5%	0	0	-
Fall 2012	382	255	66.8%	26	15	57.7%
Spring 2013	349	269	77.1%	22	15	68.2%
Fall 2013	371	255	68.7%	25	15	60.0%
All Semesters	**1,505**	**1,031**	**68.5%**	**73**	**45**	**61.6%**

The data shown in Tables 8a-8d shows comparison in pass rates between Non T-Sections and T-Sections of the same course. As shown, in the past two semesters MAT-011 students in T-Sections had higher pass rates than their peers in Non T-Sections. For Fall of 2013, overall pass rates for both types of classes are as follow: MAT-011 64.5%, MAT-031 58.2%, MAT-032 65.6% and MAT-035 68.2%. Students who place into MAT-035 have stronger skills than their peers enrolled in MAT-031. Therefore, it makes sense that their pass rates would be higher. MAT-011, a basic mathematics course had an overall pass rate of 64.5%. Since these students often are new students (shown in previous data), the data showing that students in T Sections perform with a higher pass rate than their Non T-Section peers, can lead to the hypothesis that the self-paced option teaches these students study necessary to their success.

As shown, pass rates for traditional students has fluctuated for all courses throughout the semesters. The lowest Non T-Section pass rate being in 56.1% for the Fall 2012 semester of MAT-031. The highest Non T-Section pass rate shown is 77.1% for Spring 2013 semester MAT-035 students.

MAT-035 was first introduced as a T-Section option for students in Fall of 2012. This semester, more sections of MAT-035T were offered which will allow for more data. For MAT-011 T-Sections showed a consistent increase in pass rates. MAT-031 showed a steady increase also. The only exception being in Spring of 2013 when Students in T-Sections had the highest pass rate of any type of course for the past four semesters (67.9%). In addition, MAT-032 has seen higher pass rates in Traditional Courses compared with T-Section courses for every semester except Spring 2013. It has been expressed by students that the T-Sections can be difficult to adjust to after being in a traditional classroom. This could account for lower pass rates in T-Sections students who had passed traditional courses in MAT-011 or MAT-031.

After taking DMAT courses at Bergen Community College, many students are required to take college level courses for their degree. The DMAT Department is responsible for preparing students for their college level courses to help them be successful.

Tables 9a – 9d show the pass rates for college level math courses MAT-130, MAT-150, MAT-160, and MAT-180 for the previous four semesters (Spring 2012 – Fall 2013) based on the students' enrollment in Developmental Math. Students who took at least one DMAT course before enrolling in a college math class were considered DMAT students. Students who had not taken any DMAT courses before enrolling in a college math class were considered Non-DMAT students. Students who received a letter grade ranging from A to D were considered to have passed the college course. Students who audited the college level math course or received an incomplete in the course were not counted in the enrollment numbers.

Table 9a: Pass Rates by DMAT Enrollment MAT-130

MAT-130	Enrolled	Passed	Pass Rate
	Spring 2012		
Did not take DMAT	353	227	64.3%
Took DMAT	455	331	72.7%
TOTAL	**808**	**558**	**69.1%**
	Fall 2012		
Did not take DMAT	407	264	64.9%
Took DMAT	430	295	68.6%
TOTAL	**837**	**559**	**66.8%**
	Spring 2013		
Did not take DMAT	314	221	70.4%
Took DMAT	428	301	70.3%
TOTAL	**742**	**522**	**70.4%**

	Fall 2013		
Did not take DMAT	381	281	73.8%
Took DMAT	452	351	77.7%
TOTAL	**833**	**632**	**75.9%**

As shown in the table above, students who did not take DMAT courses generally had lower pass rates than their peers who did take DMAT courses for MAT-130. The only exception being in Spring 2013 when students who did not take DMAT courses had a higher pass rate by 0.1%. In the most recent semester, students who took DMAT courses before taking MAT-130 had a 3.9% higher pass rate than their peers who did not take DMAT courses. This shows that efforts between DMAT to collaborate with the College Level Math Department have been positive in preparing our students for college level courses. In addition, pass rates of students in MAT130 who took MAT130 have steadily increased each semester since Fall of 2012. These results show that our efforts to prepare students for college level courses have been successful. MAT-130 has been the most popular College Level Math course for students exiting the DMAT program for the past two semesters.

Table 9b: Pass Rates by DMAT Enrollment MAT-150

MAT-150	Enrolled	Passed	Pass Rate
	Spring 2012		
Did not take DMAT	520	358	68.8%
Took DMAT	421	242	57.5%
TOTAL	**941**	**600**	**63.8%**
	Fall 2012		
Did not take DMAT	568	382	67.3%
Took DMAT	440	238	54.1%
TOTAL	**1,008**	**620**	**61.5%**
	Spring 2013		
Did not take DMAT	509	340	66.8%
Took DMAT	425	227	53.4%
TOTAL	**934**	**567**	**60.7%**
	Fall 2013		
Did not take DMAT	535	385	72.0%
Took DMAT	414	257	62.1%
TOTAL	**949**	**642**	**67.7%**

Table 9b shows pass rates of MAT-150 comparing students who took DMAT courses with those who did not. For the past two semesters, this has been the second most popular College Level Math course for students exiting DMAT. While results show that students who took DMAT courses consistently had lower pass rates than their peers who did not take DMAT courses, it is important to note that from Spring 2013 to Fall of 2013, the percentage of students passing MAT-150 after taking a DMAT course increased by 8.7%. This shows that collaboration between the DMAT Department and College Level Mathematics has been positive in helping our student's success but should continue.

Table 9c: Pass Rates by DMAT Enrollment MAT-160

MAT-160	Enrolled	Passed	Pass Rate
	Spring 2012		
Did not take DMAT	246	155	63.0%
Took DMAT	182	96	52.7%
TOTAL	**428**	**251**	**58.6%**
	Fall 2012		
Did not take DMAT	315	192	61.0%
Took DMAT	224	117	52.2%
TOTAL	**539**	**309**	**57.3%**
	Spring 2013		
Did not take DMAT	294	185	62.9%
Took DMAT	214	110	51.4%
TOTAL	**508**	**295**	**58.1%**
	Fall 2013		
Did not take DMAT	297	181	60.9%
Took DMAT	191	94	49.2%
TOTAL	**488**	**275**	**56.4%**

Table 9c shows that students who took DMAT courses performed lower than their peers who did not take DMAT courses in MAT-160. One important thing to note from the data is the difference in enrolled students comparing those who took DMAT to those who did not. Students who took DMAT courses had a much lower enrollment rate than those who did not. In addition, compared with students who took DMAT courses, enrollment rates of these students were significantly higher in MAT-150 and MAT-130. Research should be completed to investigate why students who took DMAT course do not enroll in MAT-160 as much as MAT-150 or MAT-130.

Table 9d: Pass Rates by DMAT Enrollment MAT-180

MAT-180	Enrolled	Passed	Pass Rate
	Spring 2012		
Did not take DMAT	204	131	64.2%
Took DMAT	104	54	51.9%
TOTAL	**308**	**185**	**60.1%**
	Fall 2012		
Did not take DMAT	171	118	69.0%
Took DMAT	89	52	58.4%
TOTAL	**260**	**170**	**65.4%**
	Spring 2013		
Did not take DMAT	206	136	66.0%
Took DMAT	88	39	44.3%
TOTAL	**294**	**175**	**59.5%**
	Fall 2013		
Did not take DMAT	197	111	56.3%
Took DMAT	99	55	55.6%
TOTAL	**296**	**166**	**56.1%**

Table 9d shows that students who did not take DMAT courses consistently have a higher pass rate than their peers who took DMAT courses when enrolled in MAT-180. For both types of students, pass rates were higher in the fall semesters than in the spring semesters. In addition, Spring of 2013 had a large difference in pass rates (students who did not take DMAT had a 21.7% higher pass rate) yet in Fall of 2013, the difference was slight (students who did not take a DMAT course had only a 0.7% higher pass rate). This shows that significant gains were made in preparing students who took DMAT courses for MAT-180 in a small amount of time. Research should be conducted to see what DMAT changes were made prior to this semester so that these improvements can continue.

Tables 10a–10d show the grade distribution for college level math courses MAT-130, MAT-150, MAT-160, and MAT-180 for the previous four semesters (Spring 2012 – Fall 2013) based on the students' enrollment in Developmental Math. Students who took at least one DMAT course before enrolling in a college math class were considered DMAT students. Students who had not taken any DMAT courses before enrolling in a college math class were considered Non-DMAT students. Students who audited the college level math course or received an incomplete in the course were not counted in the enrollment numbers.

Table 10a: Grade Distribution by DMAT Enrollment, MAT-130

MAT-130	Spring 2012				Fall 2012			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	56	15.9%	56	12.3%	77	18.9%	30	7.0%
B+	29	8.2%	41	9.0%	36	8.8%	35	8.1%
B	44	12.5%	57	12.5%	50	12.3%	65	15.1%
C+	15	4.2%	50	11.0%	20	4.9%	42	9.8%
C	46	13.0%	72	15.8%	50	12.3%	69	16.0%
D	37	10.5%	55	12.1%	31	7.6%	54	12.6%
E	42	11.9%	21	4.6%	41	10.1%	20	4.7%
F	44	12.5%	53	11.6%	64	15.7%	75	17.4%
W	40	11.3%	50	11.0%	38	9.3%	40	9.3%
TOTAL	**353**	**100.0%**	**455**	**100.0%**	**407**	**100.0%**	**430**	**100.%**

MAT-130	Spring 2013				Fall 2013			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	43	13.7%	33	7.7%	84	22.0%	54	11.9%
B+	21	6.7%	24	5.6%	38	10.0%	35	7.7%
B	51	16.2%	63	14.7%	49	12.9%	74	16.4%
C+	27	8.6%	26	6.1%	30	7.9%	48	10.6%
C	42	13.4%	82	19.2%	51	13.4%	78	17.3%
D	37	11.8%	73	17.1%	29	7.6%	62	13.7%
E	27	8.6%	14	3.3%	23	6.0%	13	2.9%
F	34	10.8%	66	15.4%	42	11.0%	54	11.9%
W	32	10.2%	47	11.0%	35	9.2%	34	7.5%
TOTAL	**314**	**100.0%**	**428**	**100.0%**	**381**	**100.0%**	**452**	**100.0 %**

Table 10b: Grade Distribution by DMAT Enrollment, MAT-150

MAT-150	Spring 2012				Fall 2012			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	161	31.0%	52	12.4%	128	22.5%	46	10.5%
B+	39	7.5%	27	6.4%	50	8.8%	22	5.0%
B	65	12.5%	44	10.5%	60	10.6%	38	8.6%
C+	22	4.2%	26	6.2%	34	6.0%	28	6.4%
C	39	7.5%	48	11.4%	65	11.4%	47	10.7%
D	32	6.2%	45	10.7%	45	7.9%	57	13.0%
E	37	7.1%	26	6.2%	42	7.4%	23	5.2%
F	53	10.2%	59	14.0%	71	12.5%	81	18.4%
W	72	13.8%	94	22.3%	73	12.9%	98	22.3%
TOTAL	**520**	**100.0%**	**421**	**100.0%**	**568**	**100.0%**	**440**	**100.0%**

MAT-150	Spring 2013				Fall 2013			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	130	25.5%	29	6.8%	150	28.0%	45	10.9%
B+	40	7.9%	19	4.5%	36	6.7%	22	5.3%
B	64	12.6%	51	12.0%	64	12.0%	53	12.8%
C+	26	5.1%	30	7.1%	30	5.6%	25	6.0%
C	46	9.0%	44	10.4%	59	11.0%	66	15.9%
D	34	6.7%	54	12.7%	46	8.6%	46	11.1%
E	23	4.5%	15	3.5%	23	4.3%	10	2.4%
F	64	12.6%	74	17.4%	67	12.5%	67	16.2%
W	82	16.1%	109	25.6%	60	11.2%	80	19.3%
TOTAL	**509**	**100.0%**	**425**	**100.0%**	**535**	**100.0%**	**414**	**100.0%**

Table 10c: Grade Distribution by DMAT Enrollment, MAT-160

MAT-160	Spring 2012				Fall 2012			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	51	20.7%	9	4.9%	46	14.6%	14	6.3%
B+	14	5.7%	13	7.1%	29	9.2%	6	2.7%
B	20	8.1%	16	8.8%	39	12.4%	26	11.6%
C+	22	8.9%	8	4.4%	20	6.3%	18	8.0%
C	24	9.8%	24	13.2%	37	11.7%	25	11.2%
D	24	9.8%	26	14.3%	21	6.7%	28	12.5%
E	18	7.3%	10	5.5%	12	3.8%	8	3.6%
F	47	19.1%	49	26.9%	70	22.2%	64	28.6%
W	26	10.6%	27	14.8%	41	13.0%	35	15.6%
TOTAL	**246**	**100.0%**	**182**	**100.0%**	**315**	**100.0%**	**224**	**100.0%**

MAT-160	Spring 2013				Fall 2013			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	59	20.1%	12	5.6%	46	15.5%	12	6.3%
B+	14	4.8%	7	3.3%	32	10.8%	5	2.6%
B	33	11.2%	22	10.3%	33	11.1%	17	8.9%
C+	16	5.4%	11	5.1%	14	4.7%	14	7.3%
C	35	11.9%	34	15.9%	35	11.8%	29	15.2%
D	28	9.5%	24	11.2%	21	7.1%	17	8.9%
E	12	4.1%	7	3.3%	18	6.1%	9	4.7%
F	56	19.0%	53	24.8%	55	18.5%	45	23.6%
W	41	13.9%	44	20.6%	43	14.5%	43	22.5%
TOTAL	**294**	**100.0%**	**214**	**100.0%**	**297**	**100.0%**	**191**	**100.0%**

Table 10d: Grade Distribution by DMAT Enrollment, MAT-180

MAT-180	Spring 2012				Fall 2012			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	32	15.7%	9	8.7%	35	20.5%	7	7.9%
B+	15	7.4%	3	2.9%	14	8.2%	5	5.6%
B	26	12.7%	7	6.7%	22	12.9%	15	16.9%
C+	15	7.4%	5	4.8%	10	5.8%	8	9.0%
C	24	11.8%	17	16.3%	21	12.3%	8	9.0%
D	19	9.3%	13	12.5%	16	9.4%	9	10.1%
E	8	3.9%	3	2.9%	8	4.7%	2	2.2%
F	25	12.3%	23	22.1%	23	13.5%	15	16.9%
W	40	19.6%	24	23.1%	22	12.9%	20	22.5%
TOTAL	**204**	**100.0%**	**104**	**100.0%**	**171**	**100.0%**	**89**	**100.0%**

MAT-180	Spring 2013				Fall 2013			
	Did not take DMAT		Took DMAT		Did not take DMAT		Took DMAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
A	41	19.9%	5	5.7%	34	17.3%	6	6.1%
B+	13	6.3%	4	4.5%	12	6.1%	4	4.0%
B	25	12.1%	11	12.5%	31	15.7%	9	9.1%
C+	17	8.3%	6	6.8%	13	6.6%	5	5.1%
C	27	13.1%	8	9.1%	12	6.1%	17	17.2%
D	13	6.3%	5	5.7%	9	4.6%	14	14.1%
E	1	0.5%	2	2.3%	4	2.0%	4	4.0%
F	29	14.1%	27	30.7%	40	20.3%	20	20.2%
W	40	19.4%	20	22.7%	42	21.3%	20	20.2%
TOTAL	**206**	**100.0%**	**88**	**100.0%**	**197**	**100.0%**	**99**	**100.0%**

The tables above show the grade distribution for MAT130, MAT150, MAT160, and MAT180. In all classes for all semesters (except Spring 2013 and Fall 2013 for MAT180), DMAT students had lower E grades than their peers that did not take DMAT. This shows that the DMAT Department teaches students the importance of finishing classes and has helped with work and study habits.

Data Needs

1. Reasons for enrollment dropping in DMAT courses. How can we prevent enrollment from dropping?
2. How can we increase enrollment for our 21+ age group?
3. Complete of survey had a low turnout. How can we increase responses of surveys?
4. The student survey showed a mix of the amount of time worked in class. Research showing time worked compared with grades would be useful. Could be a good motivator for students to do more work outside of class.
5. Data to show success of students who start at a Non-T course then switch to a T course (and vice versa) could be a helpful tool in assessing the Self-Paced course structure. Comparing pass rates of students who had experience in different course styles could help us decide if Self-Paced or Traditional are better for repeaters, also.

FOCUS ON FACULTY AND STAFF

Reflect on the faculty and staff in the program and the degree to which their needs are met, in order for them to in turn be successful with students. Comment on each of the following categories. Some considerations are given after each category—**please comment on only those which are applicable to this program.**

Demographics
[Demographics of faculty and staff, full-time and part-time, faculty, technical/professional assistants, support positions,]

The following table summarizes the number of faculty at all campuses *

	Fall 2011	**Spring 2012**	**Fall 2012**	**Spring 2013**	**Fall 2013**	**Spring 2014**
Tenured/Tenure Track	14	13	14	12	12	13
Lecturers	7	8	9	11	10	7
Adjuncts	35	26	30	20	25	24
Total	**56**	**47**	**53**	**43**	**47**	**44**

The following two tables summarize the number and percent of sections taught by all faculty at all campuses. *

Total Sections at the Three Campuses	Fall 2011		Spring 2012		Fall 2012		Spring 2013	
Tenured and Tenure Track	74	**36%**	75	**43%**	72	**35%**	67	**42%**
Lecturers	41	**20%**	43	**25%**	62	**30%**	54	**34%**
Adjuncts	89	**44%**	55	**32%**	71	**35%**	39	**24%**
TOTAL	**204**	100%	**173**	100%	**205**	100%	**160**	100%

Total Sections at the Three Campuses	**Fall 2013**		**Spring 2014**	
Tenured and Tenure Track	69	**35%**	73	**47%**
Lecturers	69	**35%**	40	**26%**
Adjuncts	60	**30%**	42	**27%**
TOTAL	198	100%	155	100%

* A detailed breakdown of these tables is available as support for this data

In-Class Tutors by Course

	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014
MAT 010/011	24	22	29	17	30	
MAT 012/031/033	15	17	8	17	21	
MAT 032/034	9	9	11	7	16	
MAT 035			2	1	1	
Annex					3	
Number of Unique Tutors*	**28**	**34**	**36**	**28**	**42**	

*The same tutor has potentially been both a hub tutor and a regular in-class tutor

Data provided by Madhvi Sha, Mathematics Tutorial Supervisor

Professional Activities
Special projects, reassigned time, professional organizations, grants, partnerships, publications, presentations, other contributions

Keri Cerami

Reassigned time:

- Fall 2012: Researched alternative ways to create modules for the MAT011 Pilot Course. (3 hours)

Presentations:

- September 30, 2013: Offered a MML workshop for the 12 week developmental math students at the Meadowlands Campus

- October 9, 2013: Partnered with the Meadowlands tutoring center and presented a workshop on equations for MAT031/MAT035

- October 23, 2013: Partnered with the Meadowlands tutoring center and presented a workshop on factoring for MAT032/MAT035

Rosa Kontos

Reassigned time:

- Spring 2012: Liaison among course coordinators and preparation of the following packages for distribution to the faculty: (3 hours)
  1. Comprehensive problem sets to be used as reviews for all the different units of instruction in MAT 031 Algebra A
  2. Review problem sets to be used prior to the departmental Final Exam

	Fall 3013		Spring 2014	
Name	# of Hours	Description	# of Hours	Description
Linda Kass	2	Title V: 1-2-3 Connect		
Priscilla Panza	1.5	CLAC Liaison	1.5	CLAC Liaison
Susan Cohen	1.5	CLAC Liaison	1.5	CLAC Liaison
Robert Fusco		Title V Coordinator	15	T5 Coordinator
Melanie Walker	3	Adjunct Coordinator		
	2		1	Title V Coordinator
Mark Wiener	4	Title V: 1-2-3 Connect	2	MyMathLab Coordinator (Stipend)
Fernando Encarnacion	1			
Joseph Pitre	1			

Sara Mastellone

- **Publications**: "I am what I am not yet: presentation on doctoral candidates' study of educational change agents" at the Castlewood Conference in England. (summer 2013)

- **Presentations:** Workshop on Cooperative Techniques in the mathematics classroom (Fall, 2012); Workshop on What the Common Core State Standards mean in the classroom (Fall 2013); Workshop at University of Pennsylvania "I am what I am not yet: presentation on doctoral candidates' study of educational change agents;. Professional

Development for STEM professors – reading group on the research based suggestions for effective higher education STEM teaching; Workshop at the high school STEM

conference: "Can you believe it" a science/math lesson on the effect of adding one yard to the circumference of any circle. Organized a presentation for STEM faculty on TCNJ's math content for elementary education majors

- **Special Assignments**: Production of a video highlighting concept based teaching of division of fractions (Fall, 2013); advisor to elementary education majors in STEM areas

- **Professional Organizations**: National Council for the Teaching of Mathematics; National Association for Developmental Education; Mathematics Association of Two Year Colleges of New Jersey; NJ Association of Mathematics Teacher Educators

- **Partnerships:** Montclair Cares about Schools

Adjunct Faculty
[Hiring, coordination, support, communication]

Melanie Walker is the coordinator for the adjunct faculty.

Staff
[Secretarial/clerical support, other staff support]

A full time secretary supports the Developmental and College Math Departments. Up until Fall 2013, this secretary was also the sole support of the Dean of Mathematics, Science and Technology.

One student aide works approximately 10 hours a week assisting the secretary.

Data Needs
What additional data that is currently not available would have been helpful to effectively evaluate this area of the program?

FOCUS ON CURRICULUM

Reflect on the curriculum for the program—the courses, the scope and sequence, articulation with other institutions, teaching innovations, and other relevant issues—**please comment on only those which are applicable to this program.**

Summary of Program Curriculum
[Degrees, certificates, sequences of courses] Attach copies of Program Learning Outcomes, Curriculum Maps and Master Course Syllabi, Program Degree Course Requirements, where applicable.

The Developmental Mathematics Department offers two "basic" courses: Basic Mathematics and Basic Algebra in a variety of forms and formats:

Basic Mathematics

MAT-011 Basic Mathematics (3 credits):
Basic Mathematics is a study of the fundamental operations of arithmetic, intended for students whose placement examination indicates a need for a review of arithmetic skills. Topics include computation with and applications using numbers, fractions, decimals, ratios, and percent. An introduction to scientific notation has been added commencing Spring 2013. (MAT-011 previously included the study of integers, but this topic has been moved to MAT-031 with the adoption of a new textbook in Fall 2013.)

MAT-011AL Basic Mathematics Linked (3 credits):
These sections of Basic Mathematics cover the same material as MAT011 (see above) but are intended for students whose placement examination indicates a greater need. Additional instructional time is administered through a support class MAT-010AL, and these two classes must be taken together.

MAT-010AL Basic Mathematics Linked Support (1 credit):
Basic Mathematics Linked Support is a computer assisted class designed to provide additional instructional reinforcement for students enrolled in linked sections of Basic Mathematics Course (MAT-011AL)

MAT-012CA Accelerated Basic Mathematics (1 credit):
This class is intended for students whose placement examination indicates they need a "refresher" course for Basic Mathematics, while allowing them to start Algebra classes in the same semester. This class is primarily computer-based.

Elementary Algebra

MAT-035 Algebra (4 credits):
Algebra is a one semester basic algebra course for students whose placement examination indicates a need for review in algebra. Topics include signed numbers (integers), variables, integral exponents (including scientific notation), linear equations, factoring, and rational expressions.

MAT-031 Algebra A (3 credits):
Algebra A is the first of a 2 semester Algebra course equivalent to MAT-035. These courses are designed for the student who has not studied algebra previously, or for the student who has found algebra to be a difficult subject.

Topics include signed numbers, variables, integral exponents, linear equations, and rational expressions.

MAT-032 Algebra B (3 credits):

Algebra B is the second of the 2 semester Algebra course.

MAT-031CA Algebra A (3 credits):

This section of Algebra A is the first of the 2 semester Algebra course which is to be taken by students who are simultaneously taking the MAT-012CA Basic Mathematics course.

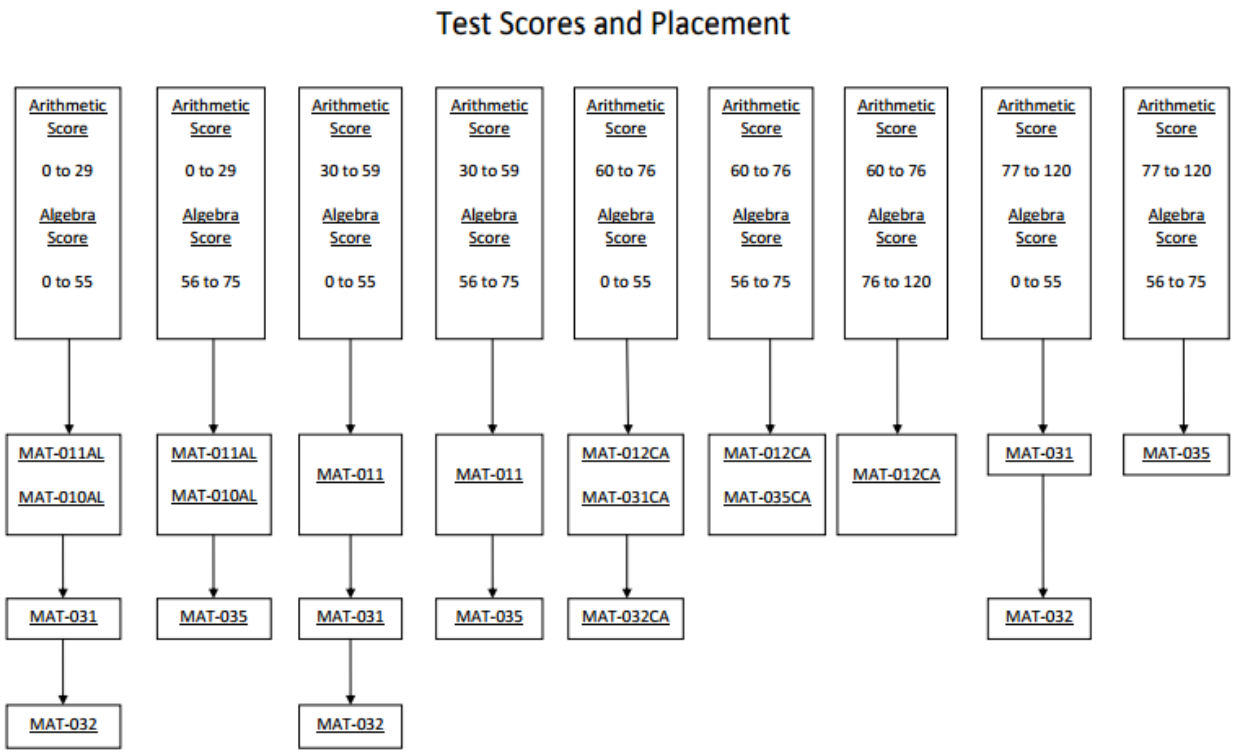
MAT-033 Algebra A Support (1 credit):

Algebra A Support is a recitation class designed to provide additional instructional time for students enrolled in linked sections of MAT-031 Algebra A.

MAT-034 Algebra B Support (1 credit):

Algebra B Support is a recitation class designed to provide additional instructional time for students enrolled in linked sections of MAT-032 Algebra B.

Course placements are according to scores on Placement Tests which is currently the Accuplacer test.



Placement into Developmental Math

Results of the Math Basic Skills placement test will place the student into entry level Math courses:

Arithmetic Placement Scores		
0-29	MAT-011**AL** Basic Arithmetic MAT-010**AL** Basic Arithmetic	3 credits (one semester) 1 credit taken with MAT-011AL (one semester)
30-59	MAT-011 Basic Arithmetic	3 credit hours (one semester)
60-76	MAT-012**CA** Basic Arithmetic **Linked with:** MAT-031**CA**Elementary Algebra (based on placement score) **Or:** MAT-035**CA** Elementary Algebra (based on placement score)	1 credit hour (seven week period) **Linked with:** 3 credit hours (one semester) **Or:** 4 credit hours (one semester)

Algebra Placement Scores		
0-55	MAT-031 and MAT-032 Elementary Algebra	3 credits each (Two Semester Course)
	Requires 6 credit hours of Developmental Elementary Algebra over two semesters.	
56-75	MAT-035 Elementary Algebra	4 credits (One Semester Course)
	Requires 4 credit hours of Developmental Elementary Algebra over one semester.	

Curricular Issues

[Articulation, program development, course development, changes to curriculum since last approval]

Bergen Community College has reviewed the developmental mathematics programs at colleges in the "area" and colleges from which we "regularly" seem to receive students. As a result, Bergen Community College will accept students as having completed and satisfied our developmental mathematics requirements if said students have satisfied the developmental mathematics requirements as follows

MAT-011	HUDSON	MA 071
	PASSAIC	MA 001 and MA 004
	RAMAPO	MATH 013
	UNION	MA 011
	FELICIAN	MT 001
MAT-031	PASSAIC	MA 006 (no MAT-035)
MAT-032	ESSEX	MTH 092 and 093 or 092T
	KEAN	MATH 1004
	HUDSON	MA 070 and 073 (must take both
	PASSAIC	MA 007
MAT-035	MIDDLESEX	MAT 075
	QUEENSBORO	MA 013
	BORO OF MANHATTAN	MA-051
	RUTGERS	MATH 025

Curriculum changes since the last Program Review/Approval have included a switching of integers from MAT-011 to MAT-031, and the inclusion of a preliminary introduction to scientific notation in MAT-011 with more in-depth coverage in the exponents section of MAT-031. The department has also changed textbooks from the Bittinger book for Basic Mathematics and Sullivan for Basic Algebra to Martin-Gay's Developmental Mathematics (2nd ed.) for both courses, thus providing more continuity for both faculty and student (as well as greater pocketbook economy for students taking two or more sections (for example the majority who fall into the MAT-011/031/032, MAT-011/035, MAT-031/032 categories).

Lead-in Courses
[Developmental preparation, prior courses and their impact, dual enrollment or articulation agreements with high schools]

Not applicable.

Follow-up Courses
[Sequential courses, connecting activities]

Not applicable.

Scheduling
[Enrollment patterns and trends; time and date issues such as day, afternoon, evening, or weekend, format issues such as self-paced, online, hybrid, or short-term]

See the attached file for the breakdown of the timings for each classes based on each campus. According to this data in Paramus campus most of the offerings of classes are for classes starting from 8am to 12 pm.

Assessment
[Ways in which the program addresses the college's commitment to assessment and assesses its program learning outcomes]

Developmental Math Department has been in practice of carrying out periodic assessment.

The upcoming assessment for 2013-2015 will be focusing on these three objectives to assess if students are proficient in these objectives as they complete the last developmental math course here at Bergen.

To solve a systems of linear equation

1. The department believes this is an important objective to assess since this skill is needed for Finite as well as the MAT-160.

2. To solve a literal equation
   The department believes this is an important objective to assess since this skill is needed for Statistics as well MAT-160 and the Sciences.

3. To evaluate an expression
   This objective is used throughout our courses and is used in Contemporary, MAT-160 and the Sciences.

Previous program assessment was conducted during 2011-2013 time frame. Four learning objectives that were assessed at that time were on question 8, 15, 21

1. Factor algebraic expressions and solve equations, including linear equation in one variable, systems of linear equations and quadratic equations.
2. Simplify arithmetic and algebraic expressions, including polynomial expression, rational expression and radical
3. Use linear equations in one variable and systems of linear equations in the solution of verbal problems

Innovations or Changes in Last Five Years
[New issues, significant changes, improved methodologies]

The Developmental Mathematics Department at Bergen Community College incorporates and aligns itself with three basic general educational goal of including a communication component, a quantitative knowledge component, and a technological component. One of the major innovations in methodologies for the department has been in the area of technology. Through the implementation of internet-related software (MyMathLab) students develop essential technological skills that transfer to many of today's educational and career felids. Starting Fall 2011 developmental math department started offering guided self-paced classes. The major purpose of guided self-paced classes is to help our students become independent learners. Along the way they also become proficient in the use of the technology.

The department is also offering hybrid and online classes using MyMathLab. This is to accommodate students who are not able to come to campus and are able to keep up with the material on their own.

Additionally, all classes throughout the department, uses MyMathLab for online homework, e-books and possible quizzes along with the possibility of web enhanced communications. This participation ensures students become independent learners as well as acquiring the important skills related to the use of computer systems, while providing them with more help options.

New Developments
To accommodate the needs of the students in the current times we, as a department, are exploring new ways to offer classes or make adjustments to current offerings. Currently, we are in the process of collaborating with the college math department to create a new course structure and ultimately a new path for liberal arts students versus STEM or business students.
There are three proposed classes MAT-040, MAT-044, MAT-048.

MAT-040 will be the prerequisite for MAT-130 / 150 / 155
MAT-048 will be the prerequisite for MAT-160
MAT-044 will serve as a bridge course for students who have completed MAT-040 and have now decided that they want to eventually take MAT-160.

New Program Starting Fall 2014

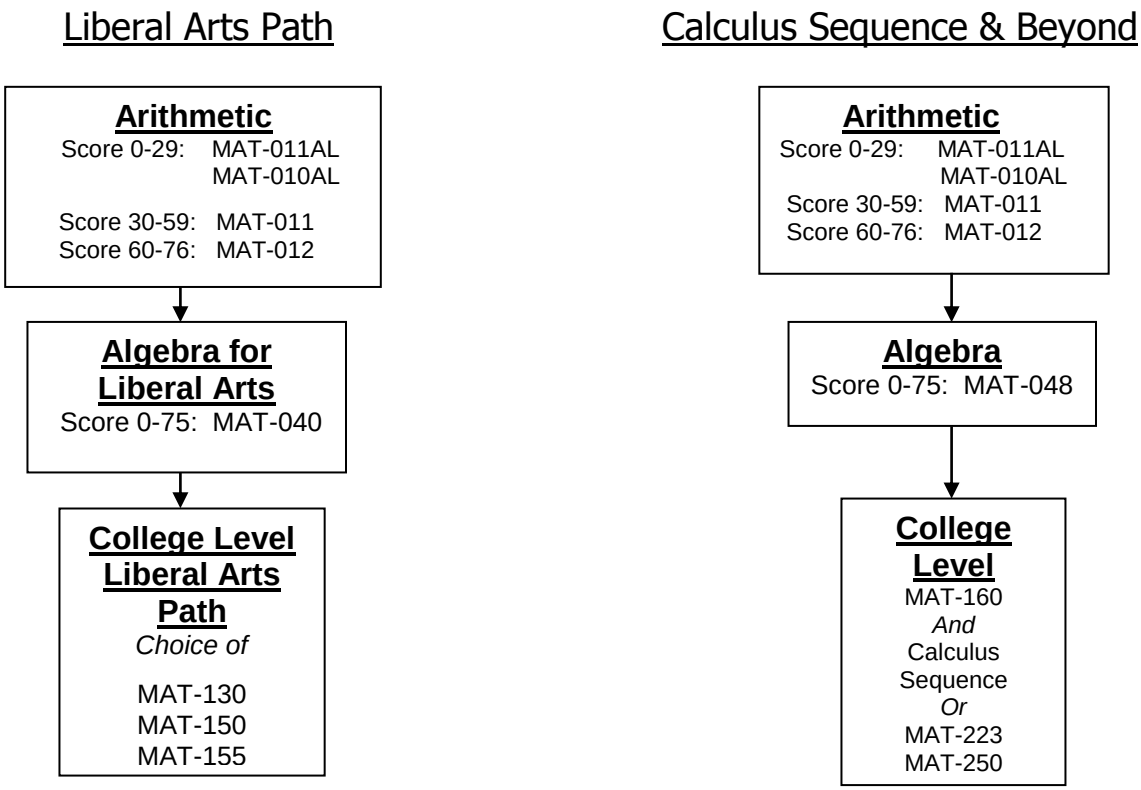
There are two different parts to the placement exam, one for arithmetic and one for algebra.
If placed into **Developmental Arithmetic** you must take one of the three different types of arithmetic courses, depending on the placement score.
If placed into **Developmental Algebra** you must take one of the algebra courses depending on your major.

MAT-011AL Basic Arithmetic requires students to take 3 credit hours of Developmental Arithmetic and one credit hour of a linked support MAT-010AL over one semester.

MAT-011 Basic Arithmetic requires students to take 3 credit hours of Developmental Arithmetic over one semester.
MAT-012 Accelerated Basic Arithmetic requires students to take 1 credit hour of Developmental Arithmetic over a 7 week period.

MAT-040 Algebra for Liberal Arts requires students to take 4 credit hours of Developmental Algebra over one semester. For students planning to take MAT-130, MAT-150, and/or MAT-155.

MAT-048 Algebra requires students to take 5 credit hours of Developmental Algebra over one semester. For students planning to take MAT-160 or such electives as MAT-180, MAT-223 or MAT-268.



Copies of Course Syllabi are attached.

Data Needs
What additional data that is currently not available would have been helpful to effectively evaluate this area of the program?

FOCUS ON SUPPORT

I. TECHNOLOGY

A. Paramus Hardware:
The TEC building houses several computer labs. In TEC-114A, known as "The Annex", there are 24 dell computers being utilized. The Title V grant has funded an additional 48 Macintosh computers in the larger TEC-114 lab, known as "The Hub". TEC-117 houses 24 HP computers. There are also several Smart Board rooms and PET stations available on reserve.

B. Lyndhurst Hardware:
There is a free time lab in Room 212 that holds 32 computers. It is open from 8:00 am to 8:00 pm. There are also 5 additional computers on both the 3rd and the 5th floor that are available from 7:00 am to 10:00 pm. The library has computers available to students during its hours of operation as well as the tutoring center. If needed, additional lab space can be made available. There is a set of basic calculators available for students to sign out and borrow. There is a PET station or Smart Board in every room.

C. Hackensack Hardware:
There is a computer lab in room 116 which holds 6 computers that can scheduled for usage during class time, if needed. It is open from 9am to 9pm. Smart technology is available for the classrooms upon request with PET stations.

D. Universal software:
The online software called "MyMathLab" from Pearson is purchased and used by students as an online textbook and support center. There is a free 14-day trial so that all students can start doing homework and utilize its resources from the first day of class. Once students purchase the software, access is valid for any future developmental courses that need to be taken by that student.

E. Paramus Training for faculty:
For the self-paced classes there are 2 training sessions every August and for the self-paced classes taught by first semester self-paced instructors, the Hub supervisors meet all classes the first day of class. Professor Mark Wiener is the MyMathLab coordinator and is available both by appointment and by email for personal assistance.

F. Lyndhurst training for faculty:
Presently, there are no self-paced classes offered at the Meadowlands campus. New faculty has the option to make an appointment with Professor Mark Wiener or Professor Keri Cerami for training in Mymathlab. For curriculum, Mymathlab or site questions new faculty can contact Professor Keri Cerami, or the department chairperson, Linda Kass.

G. Hackensack training for faculty:
Because there is just one developmental math faculty member present per semester, there is neither formal training nor a senior developmental math faculty member to refer to for questions. However, the Hackensack DMAT faculty member can contact the department chair at any time.

Suggestions: It would be beneficial for both the students and faculty if the Hackensack faculty had training and/or departmental support at that campus rather than virtually or by traveling to Lyndhurst or Paramus.

II. FACILITIES AND EQUIPMENT

All desks, computers, calculators, PET stations and smart boards are updated.

Suggestions: With the number of students enrolling in the T section math classes at the Paramus classes increasing about 50% from Fall 2012 to Fall 2013 (from 505 – 907 as indicated in tables 1a – 1d), it is imperative that the department continue to look for additional resources (i.e. additional classrooms in Paramus or offering the classes in Lyndhurst and/or Hackensack) to house the growing trend of these self-paced classes. Additionally, if calculators become a mandatory part of any curriculum, especially the final, then we need to consider purchasing additional calculators for all locations.

III. LEARNING RESOURCES

A. MyMathLab
   The MyMathLab software has many built in learning resources. Each MyMathLab account includes the following buttons: Show me an example, Help me solve this, Video, PowerPoint, Online help, and Ask My Instructor.

B. Aleks
   The Aleks software is used for the sole purpose of the department's "Second Chance Program", which is offered to students only by professor recommendation **and** who finish the semester with an average greater than 67 but less than 70. At the end of the semester, students utilize the software by reviewing, applying and testing key skills which will prepare them to retake the final within a two-week time frame, as long as at least 75% of the Aleks pie has been completed. If they pass the final they will pass the course.

C. Throughout the semester there are Faculty run concept workshops.

Suggestions: Since non-credit tutoring is available at Hackensack. The department should look into expanding the tutoring support there with the credit-based courses there.

IV. MARKETING AND PUBLIC RELATIONS

Open houses at both the Lyndhurst and Paramus campuses are held each fall and spring semester. The Lyndhurst campus has a Facebook page and any Lyndhurst developmental math workshops are advertised there. There is also a department website that details the course descriptions, FAQs for Commonly asked questions, placement flow chart from Accuplacer test scores and review materials for MAT-011 and MAT-031 broken up by topic for students who wish to review before taking the Accuplacer or wish to retest.

V. SUPPORT SERVICES

A. Advisement:
Paramus offers general advising throughout the year in the advising center.

Lyndhurst offers general advising throughout the year with student services.

Hackensack offers general advising throughout the year. Students may contact Denise Liguori for assistance.

B. Assessment:
Acuplacer tests are used for students who fall below the SAT math requirement and places them into appropriate support classes:

> **Basic Math**: MAT-011 (3-credit regular track), MAT-012 (one-credit course for those students who scored in the higher percentile but below the passing rate) or MAT-011AL (4-credits for students who scored in the lower percentile and need additional time and support)
>
> **Algebra A**: MAT-031 or MAT-031 AL (Support class with MAT-031)
>
> **Algebra B**: MAT-032 or MAT-032 AL (Support class with MAT-032)
>
> **Combo Algebra A/Algebra B:** MAT-035 (For students who scored in the higher percentile on the algebra portion of the exam but below passing)

To ensure all students are being assessed on the same skills no matter the location or level, all faculty must administer a common departmental final worth 25% of the students' final average with a standard that students must receive at least a 55% on the final in ADDITION to achieving at least a 70% average in order to pass.

C. Tutoring Support:

Tutoring Centers are offered in room A-113 for Paramus and room 202 for the Lyndhurst campus. Currently there is no tutoring available for credit-based classes in Hackensack.

In class tutors are offered and utilized for some classes on both Paramus and Lyndhurst campuses.

Tutoring sessions covering specific topics and end of semester review sessions are offered by Professors Susan Cohen and Priscilla Panza at the Paramus campus. MyMathLab workshops for students as well as concept workshops were offered by Professor Keri Cerami for 2 semesters during Spring 2013 and Fall 2013 with only 1 or 2 students showing up. Therefore, it was determined the one or two students could also benefit from their professor's office hours and the tutoring center hours. In Fall 2013, the tutoring center at Lyndhurst offered end of semester review sessions for MAT-011, MAT-031 and MAT-032/MAT-035. Unfortunately, at this time other than what the Hackensack professor offers there is no external tutoring assistance for Hackensack students at this time.

Suggestions: Assign at least one tutor to be available before and/or after offerings of Hackensack developmental math classes.

VI. RESOURCES, BUDGET

The Self-paced program is funded by the Title V grant, calculators in Paramus by the developmental math department budget and calculators at the Lyndhurst campus are funded by the Meadowlands funding.

Suggestions: For our department to research additional ways that funds can be allocated to support the technological needs of our growing department.

FOCUS ON COMMUNITY

[High School connections, community agency connections, other forms of community involvement,]

Several of the responding Developmental Mathematics faculty, volunteer at their local community institutions. These institutions include: food banks, habitat for humanity, tutoring, Parent Teacher Associations, Career Day fairs, Cub Scouts, mathematics workshop presenter for local public school teachers and parents, communication with other 2-year colleges highlighting Bergen's Developmental Mathematics program, and work with local religious groups.

One connection to the community that is directly associated with Bergen Community College are the Developmental Math Courses offered in the Bergen Community College Prep Program. This program gives the opportunity to high school students to take college courses at Bergen Community College during their senior year of high school. The students take the Accuplacer at the end of their Junior year. If they get a minimum score of 60 on the Arithmetic and 56 on the Algebra section, they are able to enroll in a Developmental Math course at Bergen Community College. This program started in Fall 2013 but was being worked on for about a year before that. The Fall 2013 students have successfully moved on to the Spring 2014 semester. In addition, new students have joined the program during the Spring 2014 semester.

Community Issues Related to Program
[Trends, employment trends or projections, transportation, funding]

Common Core State Standards and the PARCC exams being implemented in the public high schools may influence the content of the Developmental Mathematics program at Bergen.

External Requirements of Considerations
[Certifications accreditations. licensures, professional organization status or involvement]

NA

Professional organizations

Many faculty members in the Developmental Math department belong to at least one of the following: NCTM, MAA, AMATYC, NADE, and HASTAC
Certifications: K-12 teacher certifications in mathematics

Advisory Boards
[Advisory Boards' composition and input, number of Advisory Board meetings during the last two years, degree to which the Advisory Council reviews the competencies of the degree or certificates and program courses, timeframes for last reviews, other functions or activities of the Advisory Board]

NA

Data Needs
What additional data that is currently not available would have been helpful to effectively evaluate this area of the program? Access to end-of-year evaluations that highlight faculty community involvement

SUMMARY

In 2007, the Bergen Community College Mathematics Department split into two separate departments; College Level Math and Developmental Math.

The Developmental Math Department consisted of MAT 011; (Basic Math) 1 semester, 3 credits and MAT 035, (Beginning Algebra) 1 semester, 4 credits or MAT 031, 032 (beginning Algebra) 2 semesters, 3 credits each. Most students were placed in MAT 011, 031 and 032. (3 semesters)

After our split, our initial assessment in 2007 showed;

- a pass rate of approximately 43% in both Developmental Math courses,
- a large attrition rate as students progressed through the developmental sequence and
- a low pass rate for students exiting the "gate way" college level classes of MAT 130, (Contemporary Math) MAT 150 (Statistics) and MAT 160 (Intermediate Algebra).

Program Achievements Made Since last Review

1. For students needing extra support, based on their accuplacer score (20-29), students register for MAT 011 with a linked support Mat 010.
2. For students who are able to accelerate, based on their accuplacer score (60-76), students register for a one credit arithmetic course, Mat 012 with a linked algebra. Their algebra course will depend on their algebra placement score. This accelerated program allows students to complete their developmental coursework in one or two semesters depending on their algebra placement.
3. Using the emporium Model of course re-design we created our guided self-paced math classes located in our hub in Tec 114. These courses are built on line and allow the students to progress at their own pace. They require a pre-set mastery for each topic before being able to move on to the next topic. Students are allowed to accelerate and complete up to three courses in one semester. Students can use our annex in Tec 114A which is open from 9-7 Monday through Friday and on Saturdays from 10-3 for tutoring purposes and to take a proctored exam.
4. Our second chance program is for students who receive a 60-69 for their final average but have worked diligently all semester. They are given two weeks during the break to work on the course that they have failed and retake the final to achieve a passing grade of above 70%.
5. Safety- net program is for students who have registered for a math course but during the first month of classes the professor feels that the student is not grasping the material. Reasons can include illness, extended absence due to personal matters or needing more time on task. By recommendation by the Professor, students can re-enroll in the safety net program which is conducted in our Math hub in our self-paced format. This gives the student a new start.
6. In the spring 2013 we have added 1, 7 week basic math class. We offer all 3 of our courses at Hackensack and in fall 2013 we started offering 15 week and 12 week Dev Math classes in all campuses.
7. We have created on-line courses offered in spring 2013

Further assessment of pass rate and attrition rates has led us to implement the following two path career initiative which will be in place in the fall 2014 semester.

Students will take the accuplacer and depending upon their major, will be placed into MAT 011, (Basic Math) 1 semester, 3 credits,; MAT 040 (algebra for Liberal Arts) 1 semester 4 credits or MAT 048 (Algebra for students needing Intermediate algebra) 1 semester, 5 credits. (MAT 040 will be the bridge course for students who change their major) This will shorten the developmental sequence to 2 semesters. The topics added to both new courses where selected in partnership with College Level faculty. We are hoping that these added topics and different path will strengthen the students' background before they enter their college level course. Students will spend less time in Developmental Math which we hope will improve the attrition rate as well as the Graduation rate.

Our goals and objectives were to:

- Increase the pass rates in Basic Math and Beginning Algebra
- Individualize instruction so that students could progress at their own pace
- Shorten the length of time needed to complete the developmental Math sequence
- Better prepare students for college level classes

Strengths

We feel that we have succeeded in meeting all of our goals.

- We have increased our pass rate from the original 45% to the current 63%.
- We have obtained new programs that help students accelerate faster into their college level math classes.
- Funding from the title 5 grant helped create new non-traditional math programs that improved student attrition rate and pass rate.
- The Title 5 math team coordinators helped to continually assess and improve all new nontraditional programs.
- Collaboration between developmental and College level Math Departments enabled faculty to generate new math program paths that better reflected a student's major and better prepared them for college level math courses.

Challenges

- The major challenges that we faced was lack of support from faculty to make the necessary changes to the traditional Developmental math program.
- The addition of new Computer program software was difficult to master and many workshops needed to be scheduled for new as well as old faculty.
- Updates to the traditional and non-traditional courses were assessed semiannually and changes are always being made. It was difficult to schedule workshops to keep faculty up to date.
- There was not enough full time faculty that had the expertise to make all the changes that needed to take place in order to meet our goals.

- We were not able to expand further our Mastery, Self- Paced non-traditional program in the Paramus Campus as we had utilized all allotted Title 5 grant money and additional funding was not available.
- We needed to better publicize our Developmental Math programs through an update of the Bergen web site.

DEVELOPMENTAL MATHEMATICS ACTION PLAN

During the spring 2014 semester, the Developmental Mathematics Department of Bergen Community College conducted a review of their Developmental Mathematics Program. The review focused on the following;

- Curriculum and Students
- Faculty and Staff
- Support and Community
- Curriculum
- Support

Based upon the thoughtful self-report prepared by the Developmental Mathematics faculty and the visit to the Department by the external reviewer on August 13, 2014, we have identified 3 Developmental Mathematics program goals that we will plan for our future program sustainability and program improvements.

Goal 1:

Objective: 1-2-3 Connect initiatives established within the Title 5 grant should be institutionalized and supported: The success of the Title 5 program is reflected in the 62% retention rate as compared to non T5 participants at 45% retention. Our objective is to continue to support the initiatives of the title 5 grant in respect to our Mastery Self-Paced non-traditional math program

- T**ime Frame**; Since this is the final year of the Title 5 Grant funding, additional funding will be needed in Sept 2015 for the continuation of this successful Developmental Mathematics program
- **Responsible Parties**: The administration should support the continuation of this this portion of the Title 5 Grant. A $5.00 student lab fee should be considered to help offset the college expenses to help sustain this program.
- **Resource Implications**: Recourses that would be needed would be the funding for the continuation of our Self- Paced Math Hub Coordinator, the hub testing proctors, the annex supervisors and the in class tutors.

Goal 2:

Objective: Expansion of the HUB Self-Paced Mastery Program to additional Bergen Community College campuses: Our objective is to expand the guided, Self-Paced Mastery Developmental Mathematics Program to add on additional lab in the Paramus campus Tec Building and one in both Lyndhurst and Hackensack campuses.

- **Time Frame**: Lyndhurst expansion should begin in fall 2016 and Hackensack in the fall 2017.
  Responsible Parties: The administration should support the continuation of this portion of the Title 5 Grant so that is can be expanded to our other campuses. A $5.00 student lab fee should be considered to help offset the college expenses to help sustain this program.

- **Resource Implications**: The expansion to other campuses must follow the same design and format that was originated within the Paramus campus. It will be necessary to have a full time faculty member overseeing each campus, 2 computer rooms with adequate computer space, in class tutors and the appropriate level of staffing as directed by the Developmental Mathematic Department's Hub program at Bergen Community. It could be the responsibility of the Paramus' campus Hub Coordinator to oversee and assess the programs at Lyndhurst and Hackensack

Goal 3:

Objective: Revamp the Developmental Math website: While the Department is doing exciting and student-centered activities, the Department's website needs a lot of attention.

- **Time Frame:** Revamping of the Developmental Mathematics website should begin immediately and be completed when reorganization and consolidation of the two departments are finalized
- **Responsible Parties:** Developmental Mathematics faculty
- **Resource Implications:** The Developmental Mathematics faculty will revisit the Developmental Mathematics' website to update all program information. We will add new MAT 040, 048, 044 classes, make mention and describe the Hub, a non-traditional mathematics program and provide a link between Developmental and College level classes

As a final foot note to this external review, it should be noted that at the time of Cathy Holl-Cross' visit, many of our summer classes were not in session. A return visit was not possible. Some recommendation that were cited on this report, have already been implemented. Cathy's recommendation that "all instructors who are assigned to the T-sections should run identical courses" suggests that we are not doing this when indeed we do have identical classes for all sections. We do not allow faculty to make any changes to our T section classes. The Title 5 grant does pay for the recommended Hub self-paced coordinator and as stated in Goal 1, the college should continue to support this initiative.

Respectfully submitted

Developmental Mathematics Department