Part II. Analysis of the Program

Demand. The demand for remedial and developmental math continues to be high as indicated by the data. Enrollment in remedial and developmental math courses was 769 in AY2010-11, 804 in AY2011-12, and 841 in AY2012-13, which reflects an increase of 4.6% during each academic year and an overall increase of 9.3% in three year period. Over the same three year period, SSHs taught increased 7.5% and the number of classes taught increased 44.2%. One reason for the steady increase in demand is that these remedial and developmental courses are mandatory prerequisite courses for MATH 100, 101, 103, 111 or 115. MATH 100 and MATH 103 satisfy the Foundations Symbolic requirement for the Associate of Arts (AA) degree. MATH 101 is required for the Certificate of Achievement in Veterinary Assisting, and MATH 111 is a prerequisite for Elementary Education. Furthermore, completion of MATH 25, 28, or 29 with a "C" grade or better is one way to satisfy a graduation requirement for the AA degree. During AY2012-13, the Math Discipline moved its redesigned sequence of MATH 19, 28, and 29 from pilot stage to full implementation to provide students the option between self-paced learning and lecture based learning. This factor into considerable increase in the number of classes offered from AY2011-12 to AY2012-13 along with enrolment increase.

Efficiency: The average class size for remedial and developmental classes remains healthy. The average class size for remedial and developmental math classes was above 23 (approximately 93% fill rate) from AY2010-11 to AY2011-12. During AY2012-13, the class size decrease to 18.1 (84.6% fill rate). This is in part due to Math Discipline increasing the number of classes offered during AY2012-13 to accommodate multiple instructional modes. Math Discipline also increased the number of developmental math classes offered later in the day to accommodate working student population, which historically has low enrollment.

The percent of classes taught by regular discipline faculty has decreased overall all in the three year period (53% in AY2010-11, 37% in AY2011-12, and 45% in AY2012-13), while the percent of remedial and developmental math classes taught by non-regular discipline faculty (lecturers) increased (47% in AY2010-11, 63% in AY2011-12, and 55% in AY2012-13). The program goal is to have lecturers teach no more than 30% of program classes and 30% of program credits. The College has not met this program goal.

Effectiveness: The retention rate for remedial and developmental math classes at all levels below college level was 85% or higher for the three year period. There was small fluctuation but no significant trend can be found. Furthermore the retention rate was 90% or higher during the AY2012-13 for all level below college level. The program goal is to maintain an average retention rate of 80%. The College has met this program goal at each level below college level.
Successful completion rates for 3 or more levels below college level saw small increase year after year (57% in AY2010-11, 61% in AY2011-12, and 63% in AY2013). Successful completion rates for 1 level below college level remained relatively flat around 58%. Successful completion rates for 2 levels below college level decreased over the two academic years (59% in AY2010-11, 54% in AY2011-12, and 43% in AY2012-13), which is an area of concern. One reason of low success rate in AY2012-13 may be due to offering considerable number of sections of self-paced MATH 28, which contains more course content than the lecture equivalent 2 level below college level course (Math 24) to allow students to go directly to MATH 100 and 101. In addition, students in math 19, 28, and 29 must score 80% or higher on each unit exam in order to move forward compared to 70% or higher in lecture based classes. The discipline is planning to offer multiple section of lecture based MATH 28 to improve success rate. The program goal is to maintain successful completion rate of 70%. The College has not met the program goal of 70% in this area.

On average, both the fill rates and the retention rates have remained consistently high and have exceeded the program goals. However, average successful completion rates continue to remain far below the program goal of 70%. One reason may be attributed to the continued heavy reliance on lecturers. The data seem to suggest an inverse relationship between the increasing use of lecturers and the decreasing successful completion rates of the remedial and developmental math courses.

The successful next level data reveals average persistence rates of 63% for all levels during AY2012-13 (fall to spring), which on average is higher than persistence rates from previous year. The success in percent college level from 1 level below to college level increase from 61.4% in AY2011-12 to 64% in AY2012-13.

**Summary:** Overall, based on the quantitative indicators, the remedial and developmental efforts in mathematics remain healthy. There has been a steady and high demand for remedial and developmental math courses with an average retention climbing above 90% and low average successful completion rate needs to be addressed.
Part III. Action Plan

1. To increase class fill rate efficiency by offering all self-paced Math 19, 28, and 29 as combination classes.

2. Math Discipline will be offering lecture based math 28 to improve success rate in 2 levels below college level.

3. Continue to support Supplemental Instruction for the remedial and developmental math courses.

4. Increase Math Lab hours from 30 hours per week to 40 hours per week to provide tutoring to students enrolled in Developmental Math.

5. Continue to support Math Center to assist redesign computer-based classes and testing need.

Part IV. Resource Implications

1. Hire a FT instructor, reducing the heavy reliance on lecturers each semester.

2. Increase Math Lab funding to hire more tutors and extend operation hours to 40 hours per week to accommodate students need in developmental math.

3. Continuous Supplemental Instruction support for Developmental Math courses to maintain success rate.