**Bakersfield College**

**Program Review – Annual Update 2015**

**I. Program Information:**

Program Name:  **Mathematics**

Program Type: X Instructional  Student Affairs  Administrative Service

***Bakersfield College Mission****:* Bakersfield College provides opportunities for students from diverse economic, cultural, and educational backgrounds to attain Associate and Baccalaureate degrees and certificates, workplace skills, and preparation for transfer. Our rigorous and supportive learning environment fosters students’ abilities to think critically, communicate effectively, and demonstrate competencies and skills in order to engage productively in their communities and the world.

**Describe how the program supports the Bakersfield College Mission:**

The Math Department provides effective learning and earning pathways by understanding and responding to the many needs of our students who come to us with diverse economic, cultural, and educational backgrounds. The department addresses these students’ needs by offering courses using various instructional modalities such as face-to-face instruction, as well as hybrid, online, compressed and accelerated classes. These math courses satisfy the general education requirement for students seeking a Certificate, or an Associate Degree. We also have transfer level courses required for those students wishing to transfer to a four-year university. Students majoring in Math, Science and Engineering may also complete an Associate Degree in Mathematics. The ALEKs-based program used in our Math Learning Center supports self-paced student learning through appropriate technology and provides a streamline system that improves student access, retention and success for those seeking a hybrid learning environment in Pre-Algebra, Elementary Algebra, and Intermediate Algebra courses.

**Program Mission Statement:**

In order to meet the needs of our students, our primary mission is to offer academic and vocational education in lower division mathematics, and to provide education and training that contributes to continuous work force improvement. Our secondary mission is to provide developmental instruction in Pre-Algebra, Elementary Algebra, and Intermediate Algebra, as well as support students with drop-in tutoring in the Math Learning Center.

The Bakersfield College Mathematics Department is committed to developing student numeracy skills, and to expand students’ capacity to think critically and solve problems. We want our students to become productive members of society and the world. Hopefully along the way, they will learn to appreciate the beauty of mathematics, and also be able to communicate in the language of mathematics.

**II. Progress on Program Goals:**

1. List the program’s current goals.

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| **Program Goal** | **Which institutional goals from the Bakersfield College Strategic Plan will be advanced upon completion of this goal? (select all that apply)** | **Progress on goal achievement**  **(choose one)** | **Comments** |
| 1. Develop Electronic Course Portfolios. | x 1: Student Learning  x 2: Student Progression and Completion  3: Facilities  4: Oversight and Accountability  x 5: Leadership and Engagement | Completed: \_\_\_\_\_\_\_\_\_\_ (Date)  Revised: \_\_\_\_\_\_\_\_\_\_ (Date)  **x** Ongoing: Sept. 2015 (Date) | We are using SharePoint and have set up a website for math faculty to share course materials. Kurt Klopstein is maintaining the site and we have course journals set up for several of our classes. More faculty class materials need to be added to the site. |
| 1. Look for solutions to the remediation problem, and to also streamline the math pathways for students. | x 1: Student Learning  x 2: Student Progression and Completion  3: Facilities  4: Oversight and Accountability  5: Leadership and Engagement | Completed: \_\_\_\_\_\_\_\_\_\_ (Date)  Revised: \_\_\_\_\_\_\_\_\_\_ (Date)  Ongoing: Sept. 2015 (Date) | We have submitted a COR for a new accelerated course, Math B65 Intermediate Algebra for Statistics. There are 4 sections that will be piloted in Spring 2016. Students will be able to finish the algebra sequence in 1 semester instead of the usual 2 semester. Kris Toler has taken the lead in designing this new course with the help of other math faculty. |

**III. Trend Data Analysis:**

Highlight ***any significant changes*** in the following metrics and discuss what such changes mean to your program.

1. **Changes in student demographics (gender, age and ethnicity).**

* All age group demographics remained unchanged over the last year. For the 19 and younger age group, the percentage was 34%;, for 20 – 29, it was 52%;, for 30 – 39, 9%;, and for 40 and older, 5%. The age population of students taking math courses are younger (under age 30) than the age population of Bakersfield College students.
* The ethnic makeup of math students is comparable to the student population at Bakersfield College. The number of Hispanic/Latino mathematics students has continued to rise over the years and is now at 70%. White students make up 19% of all math students, which is a decrease of 3% from the previous year.

1. **Changes in enrollment (headcount, sections, course enrollment and productivity).**

* Census day enrollment remained unchanged.
* Unduplicated head count increased by 6% this past academic year and has increased over the last three years.
* Productivity has increased from 21.7 to 22.3 over the past year. Classes not only fill, but waitlists are filled to their maximum and students are turned away from traditional instruction. Due to this, many extra sections of distance education courses (hybrid and math lab) have been offered. This increased productivity online from 49.3 to 53.5. Overload for faculty increased from 7% to 11% during this time.
* FTES dropped by 31.4 from 1616.5 to 1585.1, even though unduplicated head count increased. This was the first year that Math 22 was offered at 4 units, instead of 5 units. This most likely resulted in the decrease of FTES since we offer over 25 sections of Math 22 every academic year.

1. **Success and retention for face-to-face, as well as online/distance courses.**

* The retention rate for all math courses was 84%, which is a 1% increase from last year. In class instruction retention was 85% and distance education was 79%.
* The success rate for all math courses for the past year dropped by 2% to 52%. The traditional success rate remained the same at 56%. Retention in our distance education courses increased 1% to 79%; however, the success rate fell 6% to 39%. 85% of math students have completed their student education plan, compared to 71% campus wide.
* In addition, 84% of math students are fully matriculated, as compared to 69% of campus wide.

1. **Changes in the achievement gap and disproportionate impact (Equity).**

* Retention rates for math department students by ethnicity are as follows: African American – 73%, American Indian – 79%, Asian/Filipino/Pac Isl. – 87%, Hispanic/ Latino – 81%, and White – 81%. This is slightly lower (1% – 6%) than the college as a whole. Success rates for math department students by ethnicity are as follows: African American – 37%, American Indian – 42%, Asian/Filipino/Pac Isl. – 61%, Hispanic/ Latino – 50%, and White – 55%. This is lower (12%-20%) than the college success rates. This data is over a five year period. It would be helpful to see data from year to year to see if the achievement gap is closing.

1. Other program-specific data that reflects significant changes *(please specify or attach).* All Student Affairs and Administrative Services should respond.

**IV. Program Assessment (focus on most recent year):**

1. **How did your outcomes assessment results inform your program planning?**

* In the past, instructors chose their own SLO assessment questions. This fall, the department has agreed that we will use a common SLO question for all the sections of each course to improve data evaluation.

1. **How did your outcomes assessment results inform your resource requests?**

* Last year, 3 new faculty requests were submitted to accommodate the increased number of math sections needed because of increased enrollment numbers. In addition, all students are required to have an SEP which usually includes at least one section of math.
* With the addition of the new faculty, and 2 one-year temporary positions, we have exceeded the capacity of our priority math classrooms.
* It has become apparent that two of our classrooms need modernization to bring the level of technology up to the rest of our department’s priority classrooms.

1. **How do course level student learning outcomes align with program learning outcomes?**

* See D, below.

1. **How do the program learning outcomes align with Institutional Learning Outcomes?**

* During the 2014-2015 academic year, the department has been working on writing updated SLOs that are more general and are in better alignment with our PLOs and ILOs for 14 of our math courses.
* Our new Math B65 Intermediate Algebra for Statistics has been designed so that its SLOs also align with the PLOs and ILOs.
* We will begin assessing our new SLOs starting Fall 2015 and will use the new Outcome Assessment Report to record the assessment results.

***Institutional Learning Outcomes***:

*Think: Think critically and evaluate sources and information for validity and usefulness.*

*Communicate: Communicate effectively in both written and oral forms.*

*Demonstrate: Demonstrate competency in a field of knowledge or with job-related skills.*

*Engage: Engage productively in all levels of society – interpersonal, community, the state and the nation, and the world.*

1. **Describe *any significant changes* in your program’s strengths since last year.**

* We have increased the number of compressed sections and are trying a new compressed Math B50/B60, as well as added several new hybrid sections such as Math B60, Math B1A and Math B6A.
* Significant work was done over the summer to prepare a new course, Math B65 Intermediate Algebra for Statistics, in order to streamline the math pathway for non-STEM majors while ensuring the rigor in the course.
* The department has followed through on a commitment to revise and align the SLOs for almost all of our 15 math courses.

1. **Describe *any significant changes* in your program’s weaknesses since last year.**

* Since many of our instructors teach overloads, or afternoon classes it is difficult to get enough math faculty to serve on campus-wide committees.
* It continues to be problematic to find adjunct math instructors who meet the minimum qualifications.

1. **If applicable, describe any unplanned events that affected your program.**

* At the end of the academic year, we lost several full-time tenured faculty, and this has restricted us from the accommodating the many requests we get to offer more math sections on the main campus as well as on the Delano campus.
* Due to the last minute hiring practices, we had a rocky start to the fall semester with our new math faculty having only 2 to 3 weeks to prepare to teach new classes.

**V. Assess Your Program’s Resource Needs:**

1. **Human Resources and Professional Development:**
2. If you are requesting any additional positions, explain briefly how the additional positions will contribute to increased student success. Include upcoming retirements or open positions that need to be filled.

**We are requesting two faculty positions—(1) A replacement full-time tenure track math faculty, and (2) a one-year temporary full-time math faculty for the following reasons:**

* In the past year and a half, we have lost 4 full-time tenure track math faculty due to one retirement and three who left for positions at other colleges. We were allowed to hire 3 new full-time tenure track positions this past summer, but that doesn't bring our math faculty numbers up to previous levels. In the near future, we also anticipate the loss of an additional tenure track faculty due to retirement. Therefore, we are proposing that we are granted the requests of one tenure track instructor and an additional one-year full-time temporary instructor.
* Rachel Vickrey, who has been the Coordinator for our Math Learning Center, has notified us of her plans to retire at the end of Spring 2017. The complexity of the Coordinator's duties for the MLC makes it a necessity that a tenure track faculty have a full year to learn the job of Coordinator from Professor Vickrey, as well as become familiar with the BC math curriculum. The hiring of the tenure track faculty is recommended since the intent is that this new hire would be trained and ready to make a smooth transition to the Coordinator's position which will be vacated when Rachel retires.
* We plan to utilize the full-time tenure-track position by having the new hire teach face-to-face for part of his or her load, and then train/shadow in the MLC with Rachel for the remaining part of load each semester.
* Our math classes are full every semester with full waitlists. Many of our full-time faculty are teaching overloads. With BC in growth mode, we need more math faculty to increase the number of face-to-face math sections offered. The one-year full-time temporary positions would allow us to do that.

**We are requesting an increase of hours and months to existing classified positions in the Math Learning Center.**

* For a current Teacher Aide position, we need the number of hours increased from 19 hours per week to 35 hours per week, and would like to see a change from the current 10 months per year to 11 months per year.
* For a current Teaching Assistant position, we want to increase weekly hours from 30 hours per week to 40 hours per week. The number of months per year would remain at 11 month.
* The rationlel for these increases in classified hours and months is as follows: Increases in enrollment have put more demands on classified staff for tutoring students in a timely manner, and has created additional clerical work required for processing ALEKs students.
* Increased student contact has been effective in raising student success rates, but this also puts more of a burden on classified staff when enrollment numbers are up. More classified hours would also mean that we could use the Early Alert system more effectively for the 1200 students in our hybrid math classes and respond to referrals from other faculty.

1. Professional Development:
2. Describe briefly the effectiveness of the professional development your program has been engaged in (either providing or attending) during the last year, focusing on how it contributed to student success.

* Kurt Klopstein, Donna Star, and Regina Hukill have been participating in the CAP institute training which helped prepare the department to teach our new accelerated course, Math B65 Intermediate Algebra for Statistics. Thus far, they have attended two sessions, and planned on going to a spring session. The implementation of this course will help non-STEM major students complete the algebra sequence to statistics in one semester instead of two.
* Li Kang Liu attended the 2015 Conference on Acceleration in Developmental Education in Costa Mesa, CA, June 24-26, 2015. The purpose was to see how the other colleges around the country conducted their acceleration on developmental education. Compared to many colleges, we have already taken more steps to accelerate math students at BC.

1. What professional development opportunities and contributions can your program make to the college in the future?

* The Math Department has been developing electronic course portfolios using Share Point that help faculties share sample syllabi, exams, quizzes and other class materials. At this point, only math faculties have access to the site. Once it is finished, we could showcase it to the other departments on campus to see if they would be interested in this platform as a shared space for their faculties.

1. Facilities:
2. How have facilities’ maintenance, repair or updating affected your program in the past year as it relates to student success?

* By maintaining facilities we were able to cover material in a timely matter. This left room to spend more time answering student questions and concerns.

1. How will your Facilities Request for next year contribute to student success?

* Keeping computers and equipment updated allows professors to utilize the technology to help better facilitate students learning.

C. Technology and Equipment:

1. Understanding that some programs teach in multiple classrooms, how has new, repurposed or existing technology or equipment affected your program in the past year as it relates to student success?

* By having the same technology in multiple rooms, it allows professors to have continuity in their teaching manner. It also allows more professors access to the technology.

1. How will your new or repurposed classroom, office technology and/or equipment request contribute to student success?

* It will make both students and professors more efficient in getting work done. For instance, students will have better access to course materials which will help them complete their work.

1. Discuss the effectiveness of technology used in your area to meet college strategic goals.

* It will help students get through the course material more efficiently while keeping high quality standards.

D. Budget: Explain how your budget justifications will contribute to increased student success for your program.

* **Budget form not available.**

**VI. Conclusions and Findings:**

Present any conclusions and findings about the program. This is an opportunity to provide a brief abstract/synopsis of your program’s current circumstances and needs.

The Math Department supports BC students in the classroom as well as outside of the classroom. The Math Learning Center staff offers drop-in tutoring for developmental math students. Math faculty members support several clubs on campus such as the Future Teacher Club, the Math Club, and the Women in Engineering and Science Club. Other faculty members devote time to and support student achievement in activities like the MAA Student Poster Project, AMAYTIC Student Mathematics League Competition, and the local Bakersfield Math Council AP Calculus Competition. Some math faculty serve as mentors in the new campus-wide Making It Happen Initiative, and others are using more supplemental instruction. We have worked with the Kern High School District to help them develop a 4th year high school math class for seniors that will better prepare them for success in college mathematics. Several of our math faculty support math education in our community by participating with junior high math teams and clubs.

The department further supports student learning through the use of appropriate technology. We now have 9 of our 11 math classrooms outfitted with new technology. Our statistics courses use the TI-83/84 graphing calculators as an integral part of learning about and exploring data. We support the statistics students with a self-sustaining Calculator Rental Program which rents graphing calculators to the students on the main campus and at Delano for the reasonable price of $10 per semester to ensure that this technology is made available to statistics students who might not be able to afford to purchase a $100 calculator.

The members of our department are committed to professional growth and serve on many key committees. We have participated in many school-wide initiatives such as Habits of Mind, Title V Grant proposal work group, and Multiple Measures and Common Assessment Initiatives. Our efforts show our commitment not only to BC students, but to BC as an institution.

We also support the current Completion Agenda, and have created a new accelerated course, Math B65 Intermediate Algebra for Statistics to help shorten the pathway for students to a transfer level course. But based on the Trend Data, we are not offering enough sections of math to meet the demands of the students. The week before a semester starts, we find that the waitlist for almost every section of math is full. Students are turned away. This is true for our developmental courses as well as for our transfer level courses. Our priority classrooms are utilized to the point that we must seek out classrooms in other areas of campus. Just hiring replacement math faculty is not enough. To support student success and completion, we need to hire more math faculty and we need more classroom space.

**VII. Forms Checklist (place a checkmark beside the forms listed below that are submitted as part of the Annual Update):**

X [Best Practices Form](http://committees.kccd.edu/bc/committee/programreview) **(Required)**

X Curricular Review Form **(Instructional Programs Required)**

[Certificate Form](http://committees.kccd.edu/bc/committee/programreview) **(CTE Programs** **Required)**

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X [Faculty Request Form](http://committees.kccd.edu/bc/committee/programreview) X  [Classified Request Form](http://committees.kccd.edu/bc/committee/programreview)  [Budget Form](http://committees.kccd.edu/bc/committee/programreview) (not available)

Professional Development Form X  [ISIT Form](http://committees.kccd.edu/bc/committee/programreview) X  [Facilities Form](http://committees.kccd.edu/bc/committee/programreview) (Includes Equipment)

Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_