**Bakersfield College**

**Program Review – Annual Update**

**I. Program Information:**

Program Name:

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. For each goal (minimum of 2 goals), discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section.

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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. 2016 (Date) | We have not done much work on this goal in the past year due to the fact that we have been focusing on the new CAI Assessment, and implementing a new accelerated course. A SharePoint website has been set up, but there is more work to do. |
| 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)  **X** Ongoing: Sept. 2016 (Date) | Math B65 was approved right before the start of the Spring 2016 semester, so we piloted 2 sections. This fall, we have 4 sections scheduled, and in the spring we plan on adding a few more sections. So far, success rates are encouraging for this accelerated math pathway to statistics. Kris Toler and Kurt Klopstein have taken the lead in developing this new course.  We also began work on redesigning the Math Lab courses using Title V funding, which will affect many of our remedial students in Math B50, B60 and B70. The Math Lead is Jon Brown who is building on some changes made by Rachel Vickrey. |

1. List new or revised goals (if applicable)

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| **New/Replacement Program Goal** | **Which institutional goals will be advanced upon completion of this goal? (select all that apply)** | **Anticipated Results** |
| Developing/Adjusting the new Common Assessment tool for math placement as mandated by the CAI Initiative. | x 1: Student Learning  x 2: Student Progression and Completion  3: Facilities  4: Oversight and Accountability  5: Leadership and Engagement | We will have a new assessment tool for placing students into the proper math course where the students will have the best chance for success. |

**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 35%; for 20 – 29, it was 53%; for 30 – 39, 8%; and for 40 and older, 4%. 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 remained constant at 70% over the last two years. White students continue to make up 19% of all math students, which is lower than the college make-up by 3%.

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

* Census day enrollment has increased by 8.4% to 11,138.
* Unduplicated head count increased by 4.9% this past academic year and has increased over the last five years.
* Productivity has slightly decreased from 22.3 to 22.1 over the past year, which is still far above the college-wide productivity of 17.4. 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. There has also been an increase in off-campus offerings (Arvin, Fresno Pacific).
* FTES increased by 137.2 to 1723.5.
* There has been an emphasis on offering more sections and adding more students to classes. In order to accomplish this, we need more faculty hired, which leads to a need for more classroom and office space. We plan on requesting 3 positions—2 replacement positions and one for growth.

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

* The retention rate for all math courses was 83%, which is down 1 % from last year. In class instruction retention was unchanged at 85% and distance education retention decreased 2% to 77%.
* The success rate for all math courses for the past year dropped by 1% to 52%. The traditional success rate went up 1% to 57%. The success rate in our distance education courses fell 4% to 39%. In order to improve our success rates, Math faculty are participating in Extending the Classroom and Supplemental Instruction. And, last spring we hired two new full-time professional math tutors.
* 92% of our students have completed their Student Ed Plan, compared to the college wide 75%.
* In addition, 91% of math students are fully matriculated, as compared to 73% of campus wide.

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

* The number of math degrees almost doubled from 9 to 16!

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

Use attached **Assessment Report Form AU Tab**

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

* We piloted 2 sections of Math B65, Intermediate Algebra for Statistics for the first time Spring 2016 which is an accelerated math pathway for non-STEM students. We had 7 of them take either Math B22, or Psych B5 over the summer and 5 out of the 7 summer students passed—that’s a 71% success rate. We have increased the number of sections of Math B65 this fall to 4 sections and will continue to monitor student success for these students who go on to take statistics.
* Our Math B1A, PreCalculus I is a required course for the new Bachelor’s in Automation that we now offer. We have been scheduling more sections of Math B1A, and offering more hybrid sections that meet on Friday as well as day and night face to face sections.
* We continue to offer hybrid, online, compressed and accelerated sections of math, and have increased the number of accelerated and hybrid math sections.

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

* In the past, we have had difficulty getting math faculty to serve on campus-wide committees. As of last spring, we now have math faculty on all important committees such as Curriculum, Assessment, ISIT, and Academic Senate. As a department, we are becoming more active campus-wide.
* Because of complications with CurricuNet, some of our SLO Assessment results were lost, and we had some spotty participation by faculty. Last spring, the Math Department made a concerted effort to gather SLO data for all of our 16 math courses. We successfully submitted Outcome Assessment Reports for all 16 math courses Spring 2016, which was no easy feat since we usually have over 100 sections of math taught every semester.

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

* The STEM Grant provided over 3,000 hours of tutoring assistance for our STEM students taking PreCalculus and Calculus courses last spring. That grant was not renewed for this fall, so we have lost the funding to pay for student math tutors. Also, there has been a redirection of the Supplemental Instruction (SI) Program so that it now focuses mainly on remedial math and English courses. While we do have two full-time professional tutors available, they cannot handle the large number of STEM students who will need tutoring in math. We are especially concerned about those students in our Math B1A sections who need to pass this course for the Bachelor’s in Automation.

**V. Assess Your Program’s Resource Needs:** To request resources (staff, faculty, technology, equipment, budget, and facilities), please fill out the appropriate form. <https://committees.kccd.edu/bc/committee/programreview>

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.

* Classified Position Request: We are requesting one new classified position in the Math Learning Center which is a full-time Teaching Assistant position. The MLC is undergoing a redesign with the intent to improve student success. To support the changes we will be making, we need stability in the support we provide. Having a full-time Teaching Assistant would go a long way in providing that stability. The high number of students (1000 to 1200) enrolled in the MLC’s hybrid courses requires staffing for orientations, tutoring, testing, and processing student paperwork. Often, students have to wait in long lines to be tested, or get help. Students who are not making sufficient progress towards milestones in the courses need to be either reported to Early Alert, or called and encouraged to come in and get help from a teacher or tutor. We currently are understaffed to provide this kind of support.
* Faculty Request: We are requesting 3 full-time tenure track math faculty positions—two are replacements and one is a new position. Over the summer, we lost 2 full-time tenure track math faculty due to one retirement and one who left for a position at another college. We were allowed to hire 2 new full-time tenure track positions this past spring, but that doesn't bring our math faculty numbers up to previous levels. In the near future, we also anticipate the loss of more tenure track faculty due to retirement. Therefore, we are proposing that we are granted three tenure track instructors—two for replacement positions, and an additional full-time tenure track instructor to handle the growth in student enrollment and the anticipated loss of math faculty through retirement. One of the replacement positions would be hired to teach full-time on the BC main campus, and the other would be earmarked to teach full-time in Delano. We have aggressively tried to hire more math adjuncts, but many of the applicants do not meet the minimum qualifications to teach math.

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.

* Numerous math faculty have attended math conferences over the past year such as National Council of Teachers of Mathematics, California Mathematics Council of Community Colleges, Mathematical Association of America, California Acceleration Program Institute, Association of Mathematics Teacher Education, a conference on acceleration and developmental education, a conference on institutional design and innovation, and we have 3 publisher workshops. The focus of these professional activities were Common Core and how it will affect our future students, finding shorter math pathways for developmental students, and the use of technology in the classroom to enhance instruction.

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

* Historically, the BC Math Department has hosted a Math Articulation Day, but has not done so in the last few years. Last year, the department discussed bringing it back, and we now have plans to host Math Articulation Day in Spring 2017 where math teachers from all over the county will be invited.

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

* Last summer, our classroom LA 116 was changed from a computer lab (which no one used) to a traditional classroom with desks. Students now have more work area with each one having their own desk. The previous set up in the room was not conducive to learning and not comfortable for a lot of the students. Several long tables were against a wall and students had to turn to face the front board.

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

* No Facilities Request made.

C. Technology and Equipment:

* 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? **Note: We have 4 tabs on the Excel sheet for our Technology Request Form.**
* Having the same technology in multiple classrooms has allowed professors to have more continuity in their teaching. Especially, since many of the math instructors spend many hours preparing their lessons to be presented using this technology. Modernized classrooms also allows flexibility in our scheduling of many sections since there is little or no concern about whether a classroom will have the technology needed for instruction. Being able to access material online allows us to be more efficient in our job, but also allows our students access to class notes and other materials that might be used in class on a day when they are absent.

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

* We want 3 classrooms modernized by having a teacher computer station, document camera, and Brightlink or SmartBoard installed. The technology requested will allow the instructors to make better use of class time, and that will mean there is more time in class for the students to learn the material. Filling this request will impact approximately 18 sections of math students which means that around 650 math students will directly benefit from this technology request by making the learning process more efficient.

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

* By using technology in our math classes we meet two of the strategic goals. (1) Student Learning--students will be able to get through the course material more efficiently and that makes it easier to hold to a higher standard of learning. The use of technology also makes learning more engaging for our tech savvy students. (2) Facilities—modernizing our classrooms shows our commitment to improving and maintaining our college facilities.

1. 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 tutors in the new Extended Classroom, and more faculty are using supplemental instruction in their classes. We have educated ourselves about new math pathways, and piloted a new accelerated math course called Math B65 Intermediate Algebra for Statistics which is for non-STEM majors. Several of our math faculty support math education in our community by participating with junior high math teams and clubs.

BC is a pilot for the Common Assessment Initiative (CAI). Kris Toler has worked for the past several years with the statewide Math Work Group to develop a new common assessment tool for math course placement. Last spring, we had 13 sections of math classes that piloted the potential test questions. Instructors who participated in this had to give up a whole day of instruction. Last summer, we had 3 math work group sessions take the 120 math competencies and tie them to the SLOs in each of our courses, and then we developed a strategy for using the competencies to make placement recommendations. We hope that this new assessment tool will help us better place students in a course in which they have the best chance of being successful in math. This will be an ongoing process as we collect data to determine any needed changes in the new assessment tool. Since the common assessment is an ongoing project, we felt it was important enough to make it a new department goal.

The department further supports student learning through the use of appropriate technology. We now have 9 of our 12 math classrooms outfitted with up to date technology. We are currently requesting an upgrade to 3 of our classrooms. Our statistics courses use the TI-83/84 graphing calculators as an integral part of learning about and exploring data. We now have a class set of TI-84 calculators that instructors can check out for use in the classroom. For example, several of our PreCalculus instructors check them out to do graphing exploration labs. We support the statistics and finite math students with a self-sustaining Calculator Rental Program which rents graphing calculators to the students on the main campus and at the Delano campus for the reasonable price of $10 per semester to ensure that this technology is made available to statistics and finite students who might not be able to afford to purchase a $100 calculator.

The members of our department are committed to professional growth and we have math representation on every key campus-wide committee. We have participated in many school-wide initiatives such as Habits of Mind, Title V Grant, Pathways, Extended Classroom, and the 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/Pathways 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. For example, we were able to hire 3 new math adjuncts, but that had little or no impact on our waitlists. To support student success and completion, we need to hire more full-time math faculty and we need more classroom space.