**Peralta Community College District**

## Annual Program Update Template 2014-2015

## DISTRICT-WIDE DATA by Subject/Discipline Fall Semesters

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| I. Overview | | | |
| BI Download: | 10/24/2014 | Dept. Chair: | Kelly Pernell |
| Subject/Discipline: | MATH | Dean: | Carlos Cortez |
| Campus: | Berkeley City College | | |
| Mission Statement | The mission of the Berkeley City College mathematics department is to ensure that every student graduates, transfers or progresses into a career as a disciplined, literate and ethical individual proficient at using mathematics and quantitative reasoning appropriately to analyze and solve complex problems in the real world. | | |

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| II. Enrollment | | | | | |
|  | Alameda | Berkeley | Laney | Merritt | District |
| Census Enrollment F11 | 1,502 | 1,770 | 2,926 | 1,017 | 7215 |
| Census Enrollment F12 | 1,501 | 1,610 | 2,686 | 1,050 | 6847 |
| Census Enrollment F13 | 1,499 | 1,987 | 2,913 | 1,018 | 7417 |
| Sections F11 | 32 | 43 | 69 | 22 | 166 |
| Sections F12 | 32 | 39 | 64 | 22 | 157 |
| Sections F13 | 33 | 52 | 71 | 24 | 180 |
| Total FTES F11 | 198.45 | 242.83 | 353.05 | 129.94 | 924.27 |
| Total FTES F12 | 211.20 | 219.76 | 352.09 | 142.30 | 925.35 |
| Total FTES F13 | 212.58 | 269.56 | 362.17 | 139.90 | 984.21 |
| Total FTEF F11 | 8.87 | 11.60 | 19.28 | 5.34 | 45.09 |
| Total FTEF F12 | 9.03 | 10.60 | 18.78 | 5.93 | 44.34 |
| Total FTEF F13 | 9.73 | 14.07 | 20.32 | 6.53 | 50.65 |
| FTES/FTEF F11 | 22.38 | 20.93 | 18.31 | 24.33 | 85.95 |
| FTES/FTEF F12 | 23.38 | 20.73 | 18.74 | 23.98 | 86.83 |
| FTES/FTEF F13 | 21.84 | 19.16 | 17.82 | 21.41 | 80.23 |

Note: Attendance Method “X” classes are excluded from the calculations.

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| III. Student Success | | | | | |
|  | Alameda | Berkeley | Laney | Merritt | District |
| Total Graded F11 | 1,432 | 1,662 | 2,598 | 953 | 6,645 |
| Total Graded F12 | 1,445 | 1,560 | 2,481 | 1,011 | 6,497 |
| Total Graded F13 | 1,511 | 1,966 | 2,839 | 1,032 | 7,348 |
| Success F11 | 807 | 970 | 1,444 | 427 | 3,648 |
| Success F12 | 884 | 899 | 1,488 | 504 | 3,775 |
| Success F13 | 873 | 1,014 | 1,560 | 498 | 3,945 |
| % Success F11 | 0.56 | 0.58 | 0.56 | 0.45 | 0.55 |
| % Success F12 | 0.61 | 0.58 | 0.60 | 0.50 | 0.58 |
| % Success F13 | 0.58 | 0.52 | 0.55 | 0.48 | 0.54 |
| Withdraw F11 | 310 | 484 | 596 | 329 | 1719 |
| Withdraw F12 | 246 | 426 | 514 | 272 | 1458 |
| Withdraw F13 | 330 | 630 | 703 | 320 | 1983 |
| % Withdraw F11 | 0.22 | 0.29 | 0.23 | 0.35 | 0.26 |
| % Withdraw F12 | 0.17 | 0.27 | 0.60 | 0.27 | 0.22 |
| % Withdraw F13 | 0.22 | 0.32 | 0.25 | 0.31 | 0.27 |

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| IV. Faculty | | | | | |
|  | Alameda | Berkeley | Laney | Merritt | District |
| Contract FTEF F11 | 4.86 | 3.15 | 6.64 | 3.31 | 17.96 |
| Contract FTEF F12 | 2.39 | 3.39 | 8.26 | 2.47 | 16.51 |
| Contract FTEF F13 | 3.32 | 3.33 | 8.40 | 2.47 | 17.52 |
| TEMP FTEF F11 | 4.00 | 7.80 | 11.86 | 1.81 | 25.47 |
| TEMP FTEF F12 | 6.09 | 7.00 | 9.57 | 2.87 | 25.53 |
| TEMP FTEF F13 | 5.87 | 9.93 | 10.91 | 3.40 | 30.11 |
| Extra Service FTEF F11 | 0.00 | 0.65 | 0.77 | 0.22 | 1.64 |
| Extra Service FTEF F12 | 0.55 | 0.21 | 0.95 | 0.60 | 2.31 |
| Extra Service FTEF F13 | 0.54 | 0.80 | 1.01 | 0.67 | 3.02 |
| Total FTEF F11 | 8.86 | 11.60 | 19.27 | 5.34 | 45.07 |
| Total FTEF F12 | 9.03 | 10.60 | 18.78 | 5.93 | 44.34 |
| Total FTEF F13 | 9.73 | 14.07 | 20.32 | 6.53 | 50.65 |
| % Contract/Total F11 | 0.55 | 0.27 | 0.34 | 0.62 | 0.3985 |
| % Contract/Total F12 | 0.26 | 0.32 | 0.44 | 0.42 | 0.3724 |
| % Contract/Total F13 | 0.34 | 0.24 | 0.41 | 0.38 | 0.3459 |

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| V. Qualitative Assessments | |
| **CTE and Vocational**: Community and labor market relevance. Present evidence of community need based on Advisory Committee input, industry need data, McIntyre Environmental Scan, McKinsey Economic Report, licensure and job placement rates, etc. | Mathematics is provides the foundational skill set for success in the STEM fields.  Lawrence Berkeley National Lab recently selected a site for a second campus – the Richmond Field Station. “*We believe that LBNL will attract even more technology companies to locate and expand here over the coming years*,” said Richard Robbins, head of Wareham Development. LBNL expansion will also jumpstart the private sector.  Regional Labor Market Profile indicates one of the largest projected gains in employment in the region include the areas of professional, scientific, and technical services (+10,500 jobs) and healthcare services (+10,600 jobs). The occupations that show the fastest growth include network systems and data communications analysts, biomedical engineers, network and computer systems administrators, and database administrators.  Through 2014, the largest job gains are projected for management, scientific and technical consulting, followed by computer system design, scientific research and development services (more specifically, the physical, engineering, and life sciences.)  Largest Employers in the Scientific and Technical Services: Lawrence Berkeley National Lab, Sandia National Lab, Siemines Building Tech, Techsperience, and B2B Technologies. |
| Transfer and Basic Skills: Describe how your course offerings address transfer, basic skills, and program completion. | Critical Thinking and Quantitative Reasoning are Institutional Learning Outcomes.  All BCC math courses except Math 250, 253, 206, and 201, satisfy the Quantitative Reasoning requirement for an AA/AS degree.  Math 13, 18, 50, 1, 2, 3A, 3B, 3C, 3E, and 3F satisfy the Quantitative Reasoning requirement for transfer to UC/CSU system.  Most BCC instructional programs require students to take a math course for completion, most prevalently Math 203 intermediate algebra, Math 13 Intro to Statistics, Math 16A Business Calculus, or Math 3A Calculus I.  Students who complete the transfer level Math 3A – 3C calculus sequence, Math 3E and Math 3F, and the General education requirements for transfer earn an AS-T degree in mathematics. They may transfer to any 4-year institution into the mathematics major at the junior level.  BCC offers Basic Skills students an accelerated path to transfer level statistics Math 13 within two years. (Math 250-Math253-Math206-Math 13.) This significantly helps completion of many BCC academic programs as one transfer level math course is required for several degrees and certificates.  BCC math courses in highest demand are: |

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| VI. Course SLOs and Assessment | |
|  | Fall 2014 |
| Number of active courses in your discipline | 19 |
| Number with SLOs | 19 |
| % SLOs/Active Courses | 100% |
| Number of courses with SLOs that have been assessed | 17 |
| % Assessed/SLOs | 89% |
| Describe types of assessment methods you are using  For each course, instructors who teach the course develop a paper-based SLO exam. The exam usually contains 1-2 questions aligned to each SLO. All sections of the course are given the SLO exam. Instructors grade and submit results to the department for data analysis. Final data analysis reports are shared with faculty in the department. | |
| Describe results of your SLO assessment progress  The BCC Math department has established a consistent system for assessing SLOs for each course (as described in the above paragraph).  By the end of Spring 2015, all math courses will complete SLO assessment. Math 18 and Math 16B are the only courses without SLO assessment results. These two courses are are not offered in the Fall term. They are scheduled to be assessed in Spring 2015. | |
| Describe how assessment results and reflection on those results have led to improvements.  The BCC Math department primarily shares SLO assessment results via email and its Intranet. We are working on holding department meetings specifically to discuss the data as a whole. More administrative assistance in data collection of SLO assessments would help with this goal. | |

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| VII. Program Learning Outcomes and Assessment | |
|  | Fall 2014 |
| Number of degrees and certificates in your discipline | 1 |
| Number with Program Learning Outcomes | 1 |
| Number assessed | 1 |
| % Assessed | 100% |
| Describe assessment methods you are using  SLOs for each course are aligned with the Program Level Outcomes within the TaskStream outcomes management system. SLO assessment results of all math courses in the department are used to generate a combined Program Level Outcomes report. This report is shared with faculty within the department.  We have a Curriculum Alignment Matrix for the AS-T degree to assist faculty in identifying where within each course students achieve mastery of each Program Level Outcome. (Math 3A-C, 3E, 3F) | |
| Describe results of assessment. Describe how assessment of program-level student learning outcomes led to certificate/degree program improvements.  The recent results of PLO assessments reveal that students have the most trouble with solving word problems (applications). This assessment was done in Fall 2013.  In Spring 2014, BCC submitted a proposal for a DART to explore and address student trouble with applications. The DART was approved for implementation by the Learning Resources Center. Plans to run the DART are under way in the upcoming year. | |

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| VIII. Strategic Planning Goals | |
| Check all that apply.  Advance Student Access, Success & Equity  Engage our Communities & Partners  Build Programs of Distinction  Create a Culture of Innovation & Collaboration  Develop Resources to Advance & Sustain Mission | Describe how goal applies to your program.  **Advance Student Access, Success & Equity** The Math Department supports PACE, PERSIST, FYE, and other BCC learning community programs by offering specific math sections that fit the needs of the students in each program.  We offer an accelerated pathway to transfer level statistics that helps students achieve their Quantitative Reasoning requirements for AD-T and AS-T degrees. This helps improve a student’s chance of completing their educational goals within a two-year period.  **Engage our Communities and Partners**  The Math Department collaborate with the English, ESL, and Counseling departments, BCC’s administration, and representatives from local high schools to assist students transitioning from high school to community college. We help administration and counseling to definine multiple measures for placing students into math courses.  We support all of BCC’s CTE programs by offering math courses required for all degrees and certificates.  We assist BCC in hosting various community events that involve mathematics and other STEM fields.  **Build Programs of Distinction**  The Math Department also offers special math courses such as Math 18 Math for Educators and Math 16A/B Calculus for Business and Social Sciences at least once per year so that students can complete other BCC academic programs within a two-year period.  **Create a Culture of Innovation and Collaboration**  The Math Department collaborates with counselors to find accelerated pathways through the developmental math sequence so that basic skills students get to transfer level math within a two-year period. We also work together to find ways for students in science, engineering, or computer science to accelerate through the math perquisite courses for their majors.  The Math Department collaborates with the math departments at the other Peralta colleges to ensure that students have a wide range of course offerings to meet their schedules and to ensure that each department succeeds in offering the full math program (AS-T) at their respective campuses.  **Develop Resources to Advance and Sustain Mission**  The Math Department works with the Learning Resource Center to find innovative ways to provide much needed tutorial services to our students.  We work with the Academic Senate to provide math representation on various committees that directly impact student success (eg Education Committee, Equity Committee, Facilities, PIE). We work with the administration to find faculty to represent mathematics in basic skills and for various state initiatives. |

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| IX. College Strategic Plan Relevance |
| Check all that apply    New program under development  Program that is integral to your college’s overall strategy  Program that is essential for transfer  Program that serves a community niche  Programs where student enrollment or success has been demonstrably affected by extraordinary external factors, such as barriers due to housing, employment, childcare etc.  Other |

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| X. Action Plan |
| Please describe your plan for responding to the above data (quantitative, qualitative, and data specifically from course and program learning outcomes assessment). Consider curriculum, pedagogy/instructional, scheduling, and marketing strategies. Also, please reference any cross district collaboration with the same discipline at other Peralta colleges.  Include overall plans/goals and specific action steps.  BCC offered 39 math sections in Fall 2012, 52 math sections in Fall 2013, and 56 sections in Fall 2014. This amounts to a 44% increase in the number of sections over the last two years.  Math Courses in highest demand are (average number of sections over the last 2 years):   * Math 13 Introduction to Statistics (9 Fall sections Fall; 11 Spring sections) * Math 201 Elementary Algebra (8 sections each term Spring/Fall) * Math 203 Intermediate Algebra (7 sections each term Spring/Fall) * Math 1 Pre-calculus (6 sections each term Spring/Fall) * Math 3A Calculus I (4 sections Spr/Fall; 5 sections needed Fall 2014)   Math Department productivity (FTES/FTEF) in Fall 2013 overall was 19.16.  According to the BI Tool campus wide productivity was 17.64.  The Math department employed an FTEF adjunct faculty average of 7.8. By Fall 2013, this average climbed to 9.93. Extra Service FTEF grew from 0.65 in Fall 2011 to 0.8 in Fall 2013. Currently most adjuncts are teaching a maximum 10-unit load each term. Most full time faculty teach an extra service class. The Math department still has unstaffed classes for Spring 2015.  The average student success rate for all math courses at BCC was 58% in both Fall 2011 and Fall 2012, but the average rate slipped to 52% in Fall 2013. Overall withdrawal rates also increased from 29% (Fall ’11) to 32% (Fall ’13).  Average student success rates in Basic Skills Math are significantly lower than the overall department average (Fall 2012: 43.6%)  **From the April 2014 Achievement Gap Report:**  Berkeley City College Student Success Rates in Basic Skills Math:  PCCD Student Success Rates in Basic Skills Math:  BCC’s Equity Report states “*the students with disabilities who attend BCC have been quite successful, as they have disproportionately outperformed the general population in transfer-level course completion and pre-transfer foundational course completion rates in most areas except for transfer-level Math.”*  **2014-2015 SSSP Goals** (approved through shared governance)  BCC will identify and validate two or more multiple measures, e.g., high school GPA within the last two years for English and mathematics.  Using fall semester 2013 as the baseline data point, BCC will:  Increase student course success in Math 13 for African American students from 29 percent to a minimum 50 percent course success rate by the end of spring semester 2018, with the EMP calling for a 70 percent minimum transfer-level course completion rate by 2024.  Increase student pre-transfer foundational Math course completion rates for all student populations to a minimum 60 percent threshold by the end of spring semester 2017. The Educational Master Plan will establish a 70 percent threshold goal sometime before 2024. Asian students are close to realizing this goal, but all other student populations are struggling to meet this target.  BCC will validate at least one multiple measure tool, e.g., high school GPA within two years of completion for English and/or math.  Overall, success rates of pre-transfer foundational English course completion for all racial, ethnic, and gender populations were higher than success rates of pre-transfer foundational Math course completion.  *Recommendations*:  The above data clearly suggests BCC needs to expand tutorial support in mathematics, specifically in the area of Basic Skills, Statistics, and Pre-calculus/Calculus I. Maintenance of student support in transfer level/AS-T courses also needs improvement if we are to achieve our SSSP and Educational Master Plan goals. We recommend greater involvement with the Learning Resources Center in the areas of student-led study groups, workshop/tutorial support classes, and online resources.  Data also suggests that we should explore our processes to improve our assessment methods for placing students into appropriate level math courses. We also need to assist incoming students with how to navigate the pathways through our programs. BCC is already working with OUSD and Berkeley High School to make improvements in this area. The BCC Math Department should also consider developing a foundational preparation course/workshop to prepare students for upcoming math courses.  The Math department recommends that BCC hire a full time math instructor with an interest in taking on a leadership role in Basic Skills and Learning Resources. To manage the rapid growth of our department and the increased requests for math chair involvement in accreditation, committees, state inititiatives, and projects involving community partners, we also recommend increased faculty release time for the Department Chair. If release time is not possible, then we recommend a departmental Instructional assistant for departmental administrative tasks, development of online resources, and data collection and analysis our student learning outcomes.  Class sizes in all math classes should be lowered to 35 students to improve retention and success rates. Currently the average class size for all courses is at 42 students. Student-to-teacher ratio is too high. At a minimum, basic skills courses Math 250, 253, and 201 should have these class caps.  With rapid growth at BCC, it is hard to find classroom space. There is greater demand to offer online courses to meet the student demand for classes. The math department offers online and hybrid courses in Math 250, 253, 201, 203, 13, and 1. To ensure quality online and hybrid instruction, we recommend that BCC create an Online Testing Center that serves all students at BCC (i.e. all disciplines).  *Action Plans:*   * Develop a plan to track the success of embedded tutors into Basic Skills courses and Math 13 statistics. Embed LRC tutors, particularly those connected to PERSIST, PACE, and FYE learning communities, as well as those along the accelerated pathway to statistics. * Work with faculty, staff, administration, and community partners to improve student placement into math courses and student navigation through the traditional and accelerated pathways. * Continue to develop and institutionalize the accelerated pathway to transfer level statistics. * Explore other acceleration pathways through the math program (e.g. acceleration pathway to Calculus) Continue to work with the math departments of the other Peralta colleges to establish concurrent enrollment for Math 3C Calculus III and Math 3F Differential Equations. * Refine and improve SLO assessment and analysis/action plan processes. * Further develop the Departmental Intranet to increase and improve communication among math faculty. * Run a FIG that addresses student struggles in mastering problem solving. * Develop online tutorial resources for students of all levels. * Recruit adjunct faculty. * Work with the LRC to explore options for developing an Online Testing Center for students in all disciplines. Find a permanent place to offer the math developmental hybrid 250-253-201-203 and the PACE hybrid Math 201, 203, and 13 classes. |

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| XI. Needs |
| Please describe and prioritize any **faculty, classified, and student assistant** needs.   * Full-Time Math Instructor (Basic Skills Focus, LRC Math Liason): $97,812 * 3 Embedded Teacher Aide/Tutors for Basic Skills, Statistics, and Learning Community math courses (20hrs/week each): $6,488.94 X 4 = $19,466.82 * Increased faculty release time for the Math Department Chair or an Instructional Assistant at 20 hrs/wk $11,373 (Dept Chair Aide to assist in SLO/PLO coordination and data collection and analysis, recruitment of adjunct faculty, and online resource web development) * Faculty release time to develop online tutorial resources for math (2 units per semester) * Faculty release time to develop tutorial workshops and pre-semester “bootcamp” classes to help students prepare for assessment testing and/or upcoming math classes in fall semesters. (2 units per semester) * BCC LRC Coordinator and LRC tutors (as many student tutors as the budget will allow) |
| Please describe and prioritize any **equipment, material, and supply** needs.  **Supplies: $1,500**  Dry Erase markers ($1400)  Erasers, pens, and envelopes ($100) |
| Please describe and prioritize any **facilities** needs.  The Math Department requires classrooms equipped with:   * Individual desks for examination purposes. Classrooms with large tables for group activities do not work very well for math exams. * Faculty computer with multimedia projector and internet access * Document camera * Class size 40 students   Another dedicated classroom that holds 40-50 students is needed for scheduling. The number of sections in our department has increased 44% over the last two years. It is very difficult to finalize Spring and Fall schedules.  In Summer 2014, the Math Department transformed Room 321 into a traditional lecture class with 50 individual desks. We moved the 19 Macintosh computers designated to the Basic Skills Math Lab to the Open Lab in Room 125. The Math Department still requires Room 321 to be dedicated mostly to math insruction. It still requires the use of the locked cabinet space inside this room.  The Math Department needs an Online Testing Center to manage and expand the hybrid and online courses. Because classroom space is at a premium at 2050 Center Street and the Annex, and because student demand for math courses has increased dramatically, there is pressure from the administration to add online sections. |