

**Peralta Community College District**  
**Annual Program Update Template 2013-2014**  
**DISTRICT-WIDE DATA by Subject/Discipline Fall Semesters**

<b>I. Overview</b>			
BI Download:	10/23/2013 17:41	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.		

<b>II. Enrollment</b>					
	<b>Alameda</b>	<b>Berkeley</b>	<b>Laney</b>	<b>Merritt</b>	<b>District</b>
Census Enrollment F10	1,710	1,935	3,537	1,110	8,292
Census Enrollment F11	1,503	1,770	2,926	1,017	7,216
Census Enrollment F12	1,501	1610	2,686	1,050	6,847
Sections F10	37	47	72	23	179
Sections F11	32	43	69	22	166
Sections F12	32	39	64	22	157
Total FTES F10	228.24	270.13	378.96	139.89	1017.22
Total FTES F11	198.58	242.84	353.04	129.96	924.42
Total FTES F12	211.21	219.77	352.07	142.32	925.37
Total FTEF F10	10.19	12.93	20.63	5.28	49.03
Total FTEF F11	8.87	11.6	19.28	5.34	45.09
Total FTEF F12	9.03	10.6	18.78	5.93	44.34
FTES/FTEF F10	22.41	20.89	18.37	26.51	20.7469
FTES/FTEF F11	22.4	20.93	18.31	24.33	20.5017
FTES/FTEF F12	23.38	20.73	18.74	23.99	20.8699

**III. Student Success**

	<b>Alameda</b>	<b>Berkeley</b>	<b>Laney</b>	<b>Merritt</b>	<b>District</b>
Total Graded F10	1,627.00	1814	2605	1057	7,103
Total Graded F11	1432	1662	2598	953	6645
Total Graded F12	1445	1560	2480	1011	6496
Success F10	954	1047	1606	603	4210
Success F11	807	969	1444	427	3647
Success F12	884	897	1482	503	3766
% Success F10	0.59	0.58	0.62	0.57	0.59
% Success F11	0.56	0.58	0.56	0.45	0.55
% Success F12	0.61	0.58	0.6	0.5	0.58
Withdraw F10	346	450	615	268	1679
Withdraw F11	310	484	596	329	1719
Withdraw F12	246	426	514	272	1458
% Withdraw F10	0.21	0.25	0.24	0.25	0.24
% Withdraw F11	0.22	0.29	0.23	0.35	0.26
% Withdraw F12	0.17	0.27	0.21	0.27	0.22

**IV. Faculty**

	<b>Alameda</b>	<b>Berkeley</b>	<b>Laney</b>	<b>Merritt</b>	<b>District</b>
Contract FTEF F10	5.57	3.17	9.6	4.83	23.17
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
TEMP FTEF F10	4.31	8.93	9.76	0.2	23.2
TEMP FTEF F11	4	7.8	11.86	1.81	25.47
TEMP FTEF F12	6.09	7	9.57	2.87	25.53
Extra Service FTEF F10	0.3	0.83	1.27	0.25	2.65
Extra Service FTEF F11	0	0.65	0.77	0.22	1.64
Extra Service FTEF F12	0.55	0.21	0.95	0.6	2.31
Total FTEF F10	10.18	12.93	20.62	5.28	49.01
Total FTEF F11	8.86	11.6	19.27	5.34	45.07
Total FTEF F12	9.03	10.6	18.78	5.93	44.34
% Contract/Total F10	0.55	0.24	0.47	0.91	0.4728
% 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

**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.

Labor Market Information  
[www.labormarketinfo.edd.ca.gov/](http://www.labormarketinfo.edd.ca.gov/)

**Alameda and Contra Costa Counties Projections of Employment – Occupations with the Most Job Openings:**

- Computer Support Specialists
- Computer Systems Analysts
- Software Developers
- Teacher Assistants
- Elementary School Teachers
- Special Education Elementary School Teachers

**Fastest Growing Occupations (21% by 2020)**

- Computer Information Systems Manager
- Computer Systems Analysts

**Transfer and Basic Skills:** Describe how your course offerings address transfer, basic skills, and program completion.

Quantitative Reasoning is an Institutional Learning Outcome.

All BCC math courses except Math 250, 253, 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 a math course for completion. Several require Math 203, Math 13, or Math 3A.

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 math courses in highest demand are:

Basic Skills: Math 250 Arithmetic, 253 Prealgebra, 201 Elementary Algebra, 203 Intermediate Algebra.

\* From Fall 2008 through Spring 2013, 45% of all BCC math students who received a grade took these courses.

Transfer Level: Math 13 Intro to Statistics, Math 1 Precalculus, and Math 3A Calculus I.

\* From Fall 2008 through Spring 2013, 40% of all BCC math students who received a grade took these courses.

## VI. Program Outcomes and Assessments: For each one, cite Institutional Learning Outcomes (Appendix I)

Note: If program assessment has not been completed, describe assessment plan, including date, under "Assessment Findings" and put "NA" under "Action Plan."

Program	Outcomes	Assessment Findings	Action Plan
Program 1: AS-T Math	Program Learning Outcomes for Mathematics AS-T Students who achieve associate degree in Mathematics from BCC will be able to: <ul style="list-style-type: none"> <li>• Apply mean value theorems.</li> <li>• Solve linear systems, integration problems, and problems for multivariable functions.</li> <li>• Graph and analyze basic functions.</li> <li>• Calculate derivatives.</li> <li>• Solve differential equations and analyze the solution sets.</li> </ul>	<b>PLO Assessment to be done in Fall 14</b>	N/A
Program 2:			
Program 3:			
Any general education components:			
Any basic skills components:			
Describe assessment methods you are using: We will link SLO statements to the Program Learning Outcomes. We will use common SLO exam results to determine benchmark success rates in Math 3A – 3C, 3E, 3F, the courses in the AS-T degree. We will incorporate success rates (grade A,B,or C) for these courses into the assessment.			
Describe how assessment of program-level student learning outcomes led to certificate/degree program improvements:  Success in Math 3A-3C, 3E, 3F supports success in other STEM programs at BCC, in particular, CIS and Business.  <b>PLO Assessment will be done in the coming year.</b>			

## VII. Action Plans

Please describe your plan for responding based on the preceding data: BI Tool (see II., III., IV. above), program learning outcomes action plans (see VI. above), Berkeley City College (BCC) and Peralta (PCCD) institutional goals (see Appendix II), and/or external evidence (see V. above) if appropriate. Also, please reference any cross district collaboration with the same discipline at other Peralta colleges. Include overall plans/goals and specific action steps. Please add rows as needed.

Action Item	Steps/Timeline	Person(s) Responsible	Supporting Data Source (check all that apply)
1. Evaluate and assess the hybrid/accelerated accelerated system of instruction in basic skills mathematics. Determine most efficient and best pathway to transfer level.	Spring – Fall 2014	Mary Jennings Hybrid instructors Kelly Pernel (Chair) Dmitriy Zhiv (SLO Coordinator for Dept)	<input checked="" type="checkbox"/> P.O. Assessment Action Plans <input type="checkbox"/> BI Data <input checked="" type="checkbox"/> BCC Institutional Goals <input type="checkbox"/> PCCD Institutional Goals <input type="checkbox"/> Other
2. Discuss Success rates in each course, in particular those with highest enrollment. Improve/Expand student tutorial services for these courses with the aim at increasing student success rates.	Spring – Fall 2014	Daniel Najjar Pre-statistics instructors Kelly Pernel (Chair) Dmitriy Zhiv (SLO Coordinator for dept)	<input checked="" type="checkbox"/> P.O. Assessment Action Plans <input type="checkbox"/> BI Data <input checked="" type="checkbox"/> BCC Institutional Goals <input type="checkbox"/> PCCD Institutional Goals <input type="checkbox"/> Other
3. Identify lead faculty for learning community and learning resources math representation. Establish fall and spring schedule of learning community math courses.	Spring 2014	Kelly Pernel (Chair) Full time faculty in Dept	<input type="checkbox"/> P.O. Assessment Action Plans <input checked="" type="checkbox"/> BI Data <input checked="" type="checkbox"/> BCC Institutional Goals <input type="checkbox"/> PCCD Institutional Goals <input type="checkbox"/> Other
4. Build curriculum: Advanced Statistics and Probability, Introduction to Numerical Analysis, Mathematics for Liberal Arts Majors	2014 - 2015	Mathematics Department	<input type="checkbox"/> P.O. Assessment Action Plans <input type="checkbox"/> BI Data <input checked="" type="checkbox"/> BCC Institutional Goals <input checked="" type="checkbox"/> PCCD Institutional Goals <input type="checkbox"/> Other
5. Update department website to include current information on academic pathways, faculty contact information, courses and programs offered, and links to math resources. Develop ongoing maintenance/update schedule	2014	Mathematics Department Math Chair	<input type="checkbox"/> P.O. Assessment Action Plans <input type="checkbox"/> BI Data <input checked="" type="checkbox"/> BCC Institutional Goals <input type="checkbox"/> PCCD Institutional Goals <input checked="" type="checkbox"/> Other
6. Establish an articulation agreement with Berkeley High School math courses.	2014- 2015	Mathematics Department Math Chair	<input type="checkbox"/> P.O. Assessment Action Plans <input type="checkbox"/> BI Data
7. Finalize PLO statements and begin assessment.	Spring –Fall 2014	Math Department SLO Coordinator	<input checked="" type="checkbox"/> BCC Institutional Goals

Refine SLO assessment tools and process to form more consistent system across all courses. Review calendar of course assessments with department.		Math Chair	
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**VIII. Narrative:** For disciplines that support interdisciplinary programs provide additional qualitative data if appropriate.

Berkeley City College hired one new full time math faculty member to start Spring 2014. The department feels it needs to **hire one more faculty member** immediately.

In Fall 2012, BCC's total FTEF was 87.83. The math department's total FTEF was 12.3, 14% of the total for the college. BCC's math department is the second largest department on campus, just behind the English Department. In Fall 2012, the English Department's FTEF was 13.51, 15% of the total for the college. The English department has 8 full time faculty members. Including the new hire starting in Spring 14, the math department will only have 5 full time instructors.

The table below shows how unfavorably the Berkeley City College mathematics department's part-time to full-time faculty ratio compares with those of the other Peralta colleges. It is worth noting that the College of Alameda's part-time to full time ratio rose dramatically in Fall 2012 due to one faculty transfer and two faculty retirements. COA hired two new full time math faculty members in Spring 13.

**FTE Temp to FTE Contract Ratio (Part timers to Full Timers Ratio)**

			Berkeley	Merritt	Alameda	Laney
MATH	Year 08-09	Fall	3.71	0.46	1.03	1.21
		Spring	3.19	0.39	1.51	0.97
	Year 09-10	Fall	3.68	0.26	0.95	1.08
		Spring	2.87	0.26	0.73	0.77
	Year 10-11	Fall	2.82	0.04	0.77	1.02
		Spring	3.01	0.11	0.91	0.96
	Year 11-12	Fall	2.48	0.55	0.82	1.79
		Spring	2.35	0.68	0.56	1.28
	Year 12-13	Fall	2.06	1.16	2.55	1.16
		Spring				

The average class size in BCC Math is too high at 42 students per class. Student success, retention, and persistence rates suffer when class sizes are large. The math department recommends **an enrollment cap of 35 students per class in the Basic skills courses** Math 250, 253, and 201. These courses have low success rates and high withdrawal rates (see table of Success Rates at the end of this section). **Additional sections** are necessary to lower the class size. In addition to the need for more faculty, **student tutorial assistants** are needed for these courses.

The math department has received increased pressure from learning community coordinators, administration, and learning resources to be more involved. The department needs more full time faculty to help with these programs and to provide representation on shared governance committees.

Now that the department has gone through one full cycle of SLO assessments, it is time to review processes and make adjustments so that data collection is accurate and consistent for all courses. The department is making progress getting all faculty to participate in administering common SLO final exams, grading the exams using a common rubric, and submitting results through electronic templates. Next steps will involve the development of common SLO final exams for each course. A departmental student assistant is needed to assist with administrative tasks regarding data collection, reporting, and cataloging of SLOs results for all courses.

The college shared governance committees have recently discussed the desire and need to use our college website to advertise our programs and services and our AS-T degrees. BCC Math needs to identify a lead faculty member to oversee the departmental web site. This person could also work with the campus Distance Education Coordinator to research free (open source) online tutorial resources to assist the Learning Resources Center. A departmental student assistant would help with web site development of resource links for students.

The table at the end of this section shows combined success, withdrawal, and failure rates for students taking math courses at BCC from Fall 2008 through Spring 2013. The most important data points to note from the table are the following:

Of all the BCC students who earned a grade in a math class:

48% took a Basic Skills course.

52% took a transfer level course.

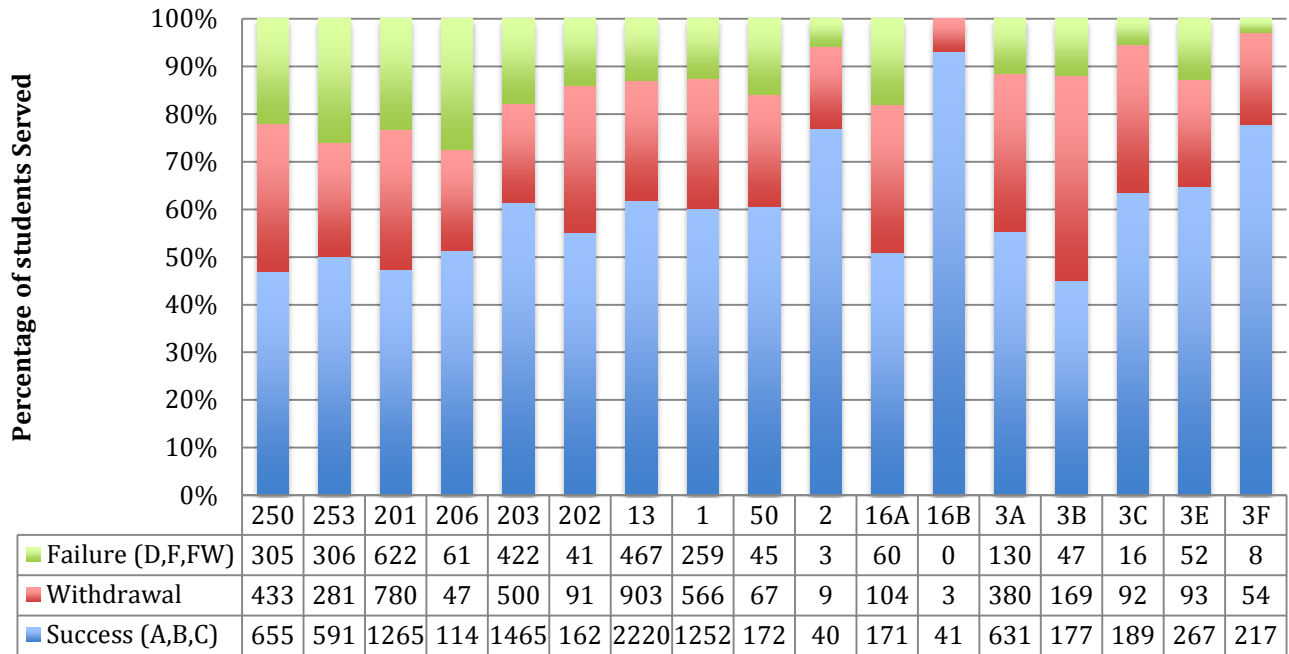
The Basic skills math courses with the highest enrollment are Math 250 Arithmetic, 253 Prealgebra, 201 Elementary Algebra, and 203 Intermediate Algebra. 45% of the grades came from these courses.

The transfer level math courses with the highest enrollment are Math 13 Statistics, Math 1 Pre-calculus, and Math 3A Calculus I. 40% of the grades earned in the time period came from these courses.

Data shows the remaining 15% grades came from trigonometry, and the majority of the math courses required for the AS-T degree – Calculus II, Calculus III, linear algebra, and differential equations. To increase program completion rates, BCC should consider increasing the number of sections in these courses. Enrollment trends suggest greater student demand for Math 3B. This would be a good starting point to expand/grow.

The math department will work more closely with BCC Learning Resources to address the low success rates and high withdrawal rates in basic skills math courses, particularly Math 250, 253, and 201. In Spring 14, BCC will work with Berkeley High School teachers and counselors to establish a more robust articulation agreement for incoming high school graduates. The administration has requested three math department faculty participate in the discussions. The math department will assist the learning communities with the development of workshop/study group sessions for math students in specific programs such as PACE and First Year Experience.

## BCC Math Combined Success, Withdrawal, Failure Rates Fall 2008 - Spring 2013



### 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



<p><b>X. Resource Needs:</b> Please use the Excel template to estimate the cost of your needs, which will be used to support budget planning efforts.</p>	<p><b>Link to Action Plans (Refer to # of item in section VI)</b></p>	<p><b>Estimated Cost:</b> Please use Excel template to estimate costs.</p>
<p>Please describe and prioritize any <b>faculty, classified, and student assistant</b> needs.</p> <p><b>One full time instructor</b> in addition to the one starting in Spring 2014</p> <p><b>2 Student Workers</b> – one for Basic Skills and general Math tutorial assistance, one for departmental assistance of administrative tasks (SLO, web site, backup tutor, math lab management).</p>	<p>Items 1 through 7 on the list of Action Items.</p>	<p>Instructor: \$97,812 Student Workers: \$12,977.88 <b>Total: \$110,789.88</b></p>
<p>Please describe and prioritize any <b>equipment, material, and supply</b> needs.</p> <p><b>Dry Erase Markers</b> are needed for all math sections in Spring and Fall.</p> <p><b>Office supplies</b> are needed for the department (paper clips, manila folders, hanging files, stapler, organizers for faculty, etc.)</p> <p><b>Toner cartridge</b> is needed for the printer in the Math Lab.</p> <p>Full time faculty a computer upgrade. The new full time faculty also need a computer. The equipment budget request includes <b>5 new computers</b>.</p> <p>The math department supports the acquisition of a <b>campus student response system</b>.</p>	<p>Items 1 through 7 on the list of Action items justify the computer upgrade for all full time faculty.</p> <p>Office supplies are needed to teach courses, conduct SLO assessment, and maintain the department office files and records.</p>	<p>Office Supplies Quote (without shipping): \$1,373.94</p> <p><b>Supplies Budget Request: \$1,500</b></p> <p><b>Equipment Request: \$8,290.00</b></p>
<p>Please describe and prioritize any <b>facilities</b> needs.</p> <p>Math classes require <b>large classrooms accommodating 40-50 students</b>. Classrooms should be <b>equipped with multimedia projector and screen classroom computer and internet access large dry erase boards individual desks</b>.</p> <p>Many of the 5-unit math sections are held in the 7:30am, 10am, and 3:30pm time slots. These time slots are quite popular; it is very hard securing proper classrooms for our math courses. The math department requests <b>dedicated classroom space</b> to schedule its math courses. We also recommend the <b>college acquire a new building</b> to handle current space demands and to prepare for growth.</p>	<p>BCC <b>offers 39 – 43</b> math sections each semester.</p>	

## Appendix I: BCC Institutional Learning Outcomes (ILOs)

### Berkeley City College Institutional Learning Outcomes

Berkeley City College's Institutional Learning Outcomes, as described below, are the skills and knowledge that students are expected to attain as a result of completing an instructional program at BCC. Students completing an A.A. or A.S. at BCC will be able to demonstrate all of the BCC Institutional Learning Outcomes. All BCC courses and certificates are designed to teach some or all of the ILO's. In addition, students achieve these ILO's throughout their experiences at BCC, for example, with student services and student clubs.

#### Communication

Students show that they communicate well when they

- *Critically read, write, and communicate interpersonally, with audience awareness; and*
- *analyze communications for meaning, purpose, effectiveness, and logic.*

#### Critical Thinking

Students demonstrate critical thinking skills when they

- *identify problems or arguments and isolate facts related to arguments;*
- *use evidence and sound reasoning to justify well-informed positions; and*
- *generate multiple solutions to problems and predict consequences.*

#### Computational Skills (Quantitative Reasoning\*)

Students demonstrate computational skills when they

- *master computational concepts and apply them to concrete problems; and*
- *demonstrate algorithmic competence.*

#### Ethics and Personal Responsibility

Students show the ability to behave ethically and assume personal responsibility when they

- *analyze the consequences of their actions and the impact of these actions on society and the self; and*
- *demonstrate collaborative involvement in community interests.*

#### Global Awareness & Valuing Diversity (Intercultural Competency\*)

Students demonstrate global awareness and show that they value diversity when they

- *identify and explain diverse customs, beliefs, and lifestyles; and*
- *analyze how cultural, historical, and geographical issues shape perceptions.*

#### Information Competency

Students demonstrate information competency when they

- *find, evaluate, use, and communicate information in all its various formats;*
- *use library and online resources and research methodology effectively; and*
- *use technology effectively.*

#### Self-Awareness & Interpersonal Skills

Students demonstrate self-awareness and interpersonal skills when they

- *analyze their own actions and the perspectives of other persons; and*
- *work effectively with others in groups.*

\*Proposed changes as of November 2013

## Appendix II: Goals

### Berkeley City College Institutional Goals 2013 - 2014

1. Increase certificate/degree completion and transfers to 4-year colleges or universities by inspiring and supporting students
2. Improve career and college preparation progress and success rate (successfully transition from basic skills to college-level, CTE to career)
3. Ensure BCC programs and services reach sustainable, continuous improvement level
4. Collaborate to ensure Fiscal Stability
5. Meet BCC resident FTES target (3,691) by preserving and nourishing resources

### Peralta Community College District Strategic Goals 2013 - 2014

- A. Advance Student Access, Equity, and Success
- B. Engage and Leverage Partners
- C. Build Programs of Distinction
- D. Create a Culture of Innovation and Collaboration
- E. Develop and Manage Resources to Advance Our Mission

BCC Goals	Alignment with PCCD Goals Below
1. Increase certificate/degree completion and transfers to 4-year colleges or universities by inspiring and supporting students	A. Advance Student Access, Equity, and Success B. Engage and Leverage Partners C. Build Programs of Distinction
2. Improve career and college preparation progress and success rate (successfully transition from basic skills to college-level, CTE to career)	A. Advance Student Access, Equity, and Success C. Build Programs of Distinction
3. Ensure BCC programs and services reach sustainable, continuous improvement level	B. Engage and Leverage Partners C. Build Programs of Distinction D. Create a Culture of Innovation and Collaboration
4. Collaborate to ensure Fiscal Stability	D. Create a Culture of Innovation and Collaboration E. Develop and Manage Resources to Advance Our Mission
5. Meet BCC resident FTES target (3,691) by preserving and nourishing resources	E. Develop and Manage Resources to Advance Our Mission