PROGRAM REVIEW
2015 – 2016

INSTRUCTIONAL SELF-STUDY
Program Review Self-Study

The Self-Study section of this program review must be submitted by Friday, November 4, 2016.

You will find General Instructions for completing this program review as well as answers to some Frequently Asked Questions under the General Information and Contacts drop down of the Program Review tab at SLAPEC’s home page.

General

1. What is the name of your program?

   Mathematics Department and the Math Resource Center (MRC)

2. Who is the primary contact person for this Program Review?

   Chris Dyer – Mathematics Department Chair

3. Please list the names of others who will be collaborating on this program review:

   None

4. How does the program contribute to the fulfillment of the College’s mission? (Click here for the College’s mission statement)

   The mathematics program supports all students along their pathway to reach transfer and career goals in an environment of academic excellence. All courses within the Department of Mathematics are either transfer level or preparation for a transfer level mathematics course (basic skills). The courses in mathematics support courses (prerequisites) to courses in many disciplines. All transfer level mathematics courses satisfy CSU General Education/Breadth area B4 in mathematical/quantitative reasoning and IGETC area 2 in mathematical concepts and quantitative reasoning. In addition, intermediate algebra is a requirement for graduating from West Valley College with an AA/AS degree. The ADT in mathematics prepares mathematics majors for transfer to CSUs and the AS degree in mathematics prepares students for both CSU and/or UC transfer. These courses and degrees contribute to the education of an individual including the development of critical thinking written and oral communication skills understanding of and the ability to use quantitative analysis. The AS and ADT degrees in mathematics advances California growth; in particular the growth of Silicon Valley in preparing students for a career in the field of science and technology.
5. **Describe any external influences that impact the program** (Federal or State regulation, advisory boards, etc.).

Our program is impacted by all state and federal regulations imposed on the College as well as all regulations imposed by ACCJC. Our curriculum is influenced by articulation agreements with other Colleges.

---

**Closing the Loop**

In answering the following questions, please refer to the program’s most recent **Program Review submissions**. You may find these by clicking on the hyperlinks corresponding to the following academic years: 2013-2014 and 2014-2015. Program reviews for other years have been archived under **Documents** at the old **Program Review committee home page**.

---

6. **What were the program’s goals and objectives from its 2013-2014 and 2014-2015 program reviews?** Please discuss how your program was successful in meeting its goals and objectives and any challenges faced by the program in meeting its goals and objectives.

- Many students enter West Valley College with their math skills one or more levels below transfer level. For a large proportion of those students, the only college level math class they need to take is statistics. To accelerate students into this transfer level course, the department created an acceleration pathway in the course Math 106S, Intermediate Algebra for Statistics. Students take this one five-unit course in one semester as opposed to taking elementary and intermediate algebra (ten units) over two semesters. By reducing the number of exit points (enrolling, passing, enrolling again, and passing again), more students are able to reach a transfer level course. A committee was put together and did extensive research in formatting the curriculum for this course, studying the best method to deliver the course, and created a workbook/textbook for the course. We have now offered the course for two years with tremendous success.

- Geometry is a course taken by students who wish to take pre-calculus and/or trigonometry and for students who desire to study education. However, only a small proportion of the topics in geometry are necessary to succeed in pre-calculus and trigonometry. Our traditional geometry course, Math 104, is four lecture units. The department created a hybrid geometry course that is a one-unit lab called Geometry Review for Trigonometry, Math 104R. It is a two week course that we offer in summer and winter sessions. This course was first implemented in winter of 2016 with great success. Other than talented math faculty taking the time to develop the course, this objective was met.

- To expand access to our preparatory for algebra boot camp courses, Math 903P/106P (1/2 unit lab courses), the department decided to make them hybrid courses. This change went into effect for winter 2016.
• The department regularly analyzes SLO assessment data and engages in departmental discussions to remedy any SLOs in any courses that are deficient.

• After evaluating the different computerized placement test systems, the department settled on Accuplacer to be our official placement. Once it was implemented, the department had to judge its effectiveness in placing students and survey the thousands of students who took it in order to validate the placement test.

• The course with the lowest success rate in the Math Department is Math 1, Pre-calculus Algebra. A committee of three faculty chose to teach the class for several consecutive semesters to establish the best practices for that course. They came up with a number of suggestions, but it seems that being extremely familiar in teaching that course is one of the most advantageous ways in increasing student success.

• The department established a more uniformity calculator policy for its courses. While each instructor has some freedom within that policy, basic standards for each course were put into effect to create more consistency amongst courses and sections.

7. **Was the program allocated any additional resources to help it meet its goals and objectives and influence student success?** If the program was allocated additional resources, how did they help the program meet its goals and objectives? Alternatively, if the program requested resources that were not allocated, what was the impact on the program?

BSAC funding was received for the development of Math 106S. The resources were used to develop curriculum and the text/workbook for a pre-statistics/acceleration course. This course was first offered in Spring 2014. Other than time and state approval of curriculum, no other resources were required for the above goals.

8. **What are the program’s proposed goals and objectives for the next 3 years? How do they align with the College’s 2020 goals and objectives?** (See the [Educational and Facilities Master Plan](#) p. 12) What resources will help the program achieve these goals? What do you think you need today to help you meet your goals and objectives for the next three years? (Please include the details in the department’s Budget Resource Survey narrative portion of Program Review.)

• Math teaches approximately 27 FTEF in courses (400 units) each semester and 7 FTEF in the summer. That is more than 60 FTEF in an academic year. The department course offerings have grown by 10% in the last three years. Math has been understaffed for some time, and despite hiring an additional faculty member and maintaining a part-time pool of 30 to 40, the department is barely treading water. To maintain the current part-time pool, the department reaches out to neighboring colleges, exhausts the applicant pool, and expands it an average of three times a year. It is important to add addition full-time faculty to maintain our current course offerings and add additional course where there is evidence of enrollment. The department has had opportunities to add additional classes, but has lacked the staffing to do so.

• The Math Resource Center (MRC) relies heavily on student tutors. However, keeping tutors working in the tutoring center and maintaining a quality group of tutors is
challenging. In the Tutorial Center, tutors are given a small raise each semester. To encourage retention of our best tutors, the MRC would like the budget to give its tutors small raises.

- Over the last year, the department has implemented multiple measures in its math placement test to better place students in their course with much success. Students who are under-placed get frustrated and choose to not to attend class or go to other colleges. The Math Department provides boosts for students who have recency in math, took certain math courses in high school, and hold a GPA over 2.5. The department is planning to participate in the multiple measures initiative brought forth by representatives of the state that provide more accurate and comprehensive multiple measures on placement than the ones the department has currently implemented. It is supported by extensive data that if students are properly placed in their courses (not at a level too high or too low), then they are more likely to succeed in that course.

- Several math faculty have attended conferences regarding supplemental instruction and how it can be incorporated into courses. Success in basic skills math courses is only about 50% and the department wants to continue researching on how supplemental instruction could be imbedded in these basic skills courses. If this happens, we would likely need to hire a supplemental instructor. More analysis on this is likely to come in the next year.

- A couple of years ago, the department only offered one online course per semester, intermediate algebra. About two years ago, we offered a second online course for elementary statistics. Since the start of 2016, the department is now offering three online courses and three hybrid courses with two more scheduled for the next academic year. The department only permits trained faculty that are dedicated in providing regular and effective contact hours to teach distance education courses. Currently, we have only a few faculty that fit that criteria – more are needed. Our offerings include: elementary algebra, intermediate algebra, and statistics. This is a path from basic skills to transfer level that fits a large percentage of our students’ needs. Four of our five hybrid courses are (½ unit lab) preparatory courses for most commonly offered math courses. The fifth hybrid course is a one-unit acceleration course for students who need geometry to succeed in precalculus. It has been immensely successful in student satisfying that prerequisite course which is needed for pre-calculus and/or trigonometry.

- The department hopes to expand the acceleration pathways it offers. The first pathway is the course that accelerates a basic skills student into transfer level statistics in just one course, our pre-statistics course. The department currently offers four sections of this course each semester, but we hope to find more trained faculty and advise a larger body of students so that we can increase our offerings to serve students in the evening and during summer session. The second acceleration course is a geometry review course. This one-unit, hybrid, and lab course is replacing most sections of our four unit lecture courses. The department has only offered this course twice (extremely successfully) and enrollment is very high. We are continuing to evaluate the best terms and times to offer this course so that we can serve the largest body of students.

- The department offers courses in arithmetic (four levels below transfer) and pre-algebra (three levels below transfer). The board recently approved seven noncredit courses that are each the equivalent of one unit (18 hours) that are meant to provide essential mathematics for basic skills and occupational students. In the next academic year, the
math department, in conjunction with Brad Weisberg, plans on identifying instructors for these courses and mapping out an appropriate schedule and location(s) to offer them.

- Noncredit placement prep course has been purposed to assist students in preparing for the math placement test. We are hoping to staff this noncredit course with an instructor to be ready in summer 2017.

- The department currently offers two, half-unit, hybrid preparatory courses for elementary algebra and intermediate algebra. We would like to offer two other, half-unit, hybrid preparatory courses for students entering pre-calculus and calculus. It is our hope to have those hybrid courses in place for winter 2018.

- Learning catalytics is a tool that allows instructors to create interactive assignments or questions for faculty to supplement their lectures with. It takes advantage of students using their smartphones and/or laptops as tools so that they are more active participants in the learning process. Faculty also can view student progress during their lectures based on student performance. Student responses are posted anonymously. However, not all students have a smartphone or a laptop. Once best practices with learning catalytics is established, having a single class set of tablets would be necessary to implement this tool.

- This academic year is the last year the department will offer late-start courses. Enrolment in these courses is mediocre, at best. In addition, the department has analyzed the success data and it was poor. Upon interviewing and surveying students, the classes were not attracting the student body that the courses would be appropriate for. The department concluded that it is not appropriate to offer these courses and is reallocating that FTEF where there is excess demand.

- The First Year Experience program is expanding and more trained instructors are required to teach the FYE classes.

- Textbook costs have continuously been rising. We will continue to look for way to utilize open-source materials, align those materials with our curriculum, and develop supplements to support that core material.

**CTE Labor Market**

9. **Is your program a CTE?** If you are unsure, then please visit the [Associate Degree, Certificate & Selected Transfer Programs](#) page for a list of CTE programs. If the program is on this list and if “Certificate” is indicated for it, then please answer “Yes” to this question and proceed to the next question. If “Certificate” is not indicated for this program, then please answer “No” for this question and skip to Question 14.

No

10. **Describe how your program meets documented labor market demand.** List the job titles for which you train students, the skills needed for those jobs and describe how your program addresses those skills.

11. **What is the program’s current Net Annual Labor Market Demand (total job openings in area minus total completers at other programs in area)?** Please refer to your program’s EMSI data by visiting the [Office of Institutional Research and Planning's](#)
home page under the CTE Related tab. If you have any questions, or want to know how to determine your program’s Net Annual Labor Market Demand, please contact the Dean of Career Education & Workforce Development, Brad Weisberg.

12. Please discuss the program’s plan to strengthen its ability to meet labor market demand.

13. Does your program provide skill building for students to obtain employment outside the job titles officially linked to the program? Please describe/explain.

Curriculum

14. Are all of the program's course outlines of record up to date? (CTE course outlines need to be updated every two years, non-CTE course outlines need to be updated every five years)

Yes. Course outlines of record for all 27 math courses have been revised and none are older the 2.5 years.

15. If any of the program's course outlines are not up to date, identify the plan of action for submitting updated course outlines by September 2017 (list by course):

N/A

16. When was the last time that the program’s degrees/certificates were updated? If the program’s degrees/certificates have not been updated recently, what is your program’s plan for updating them? (As per ACCJC guidelines, CTE programs need to be updated every two years, non-CTE course outlines need to be updated every five years).

Both the Associate of Science (AS) degree and Associate Degree for Transfer (ADT) were revised last academic year. The college is still awaiting approval from the state regarding the ADT.

17. How many annual completers does the program have for each of its degrees/certificates? The data for the number of annual completers in your program is available in Canvas – Program Review – Data module in the spreadsheet: Five_year_awards_data.

There were 24 Associates of Art Degrees in Mathematics. This degree was revised last year and is in effect starting this academic year. The degree had not been revised since 1976. The degree is now not a high unit degree and much more obtainable for students. There were 20 Associate Degrees for Transfer in Mathematics awarded.
**Enrollment and Efficiency**

Please refer to your program’s Annual Plan to inform your answers for the following questions. You may also view the data for this program's enrollment and efficiency in Canvas – Program Review – Data module in the spreadsheet: Course_offerings_and_enrollment_patterns.

18. In comparing your program's enrollment trend to the College’s please comment on any differences between the trends:

Over the past five years, the college’s enrollment has declined. The enrollment and FTES in the Math Department has been relatively stable. The figures are given below for enrollment and FTES.

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th>FTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>6408</td>
<td>886</td>
</tr>
<tr>
<td>2012-2013</td>
<td>6554</td>
<td>909</td>
</tr>
<tr>
<td>2013-2014</td>
<td>6478</td>
<td>918</td>
</tr>
<tr>
<td>2014-2015</td>
<td>6053</td>
<td>881</td>
</tr>
<tr>
<td>2015-2016</td>
<td>6123</td>
<td>905</td>
</tr>
</tbody>
</table>

19. What was your program's efficiency goal for 2015-2016?

<table>
<thead>
<tr>
<th></th>
<th>Fall 2015</th>
<th>Winter 2016</th>
<th>Spring 2016</th>
<th>Summer 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Efficiency</td>
<td>558</td>
<td>188</td>
<td>553</td>
<td>488</td>
</tr>
<tr>
<td>Actual Efficiency</td>
<td>560</td>
<td>344</td>
<td>554</td>
<td>415</td>
</tr>
</tbody>
</table>

20. In comparing your program's planned efficiency to its actual efficiency, please analyze and explain any differences.

The overall efficiency for the academic year was spot on. However, the actual efficiency for summer 2016 was a bit lower than anticipated. One section of pre-calculus algebra and one section of intermediate algebra were low enrolled at a dozen students each. The enrollments in those sections were far lower than they have been in the last decade. No adjustment will be made as it appears to be anomalous.

21. If your program is not meeting its planned efficiency goal, what program level practices will be created or modified to meet the goal during the next program review cycle?

The department is meeting its efficiency goals. No changes are expected.

**Learning Outcomes**

Please check the SLO/PLO Assessment Schedule for the program by visiting SLAPEC’s home page under "Master Schedule". The Master schedule includes submissions as of 7/15/16. Spring 2016 submissions are due October 30, 2016.
22. Are there any Learning Outcome assessment results (Program Learning Outcomes (PLOs) and/or Student Learning Outcomes (SLOS)) submissions that have been scheduled that were not submitted? If so, please tell us how you will address these submissions.

All program learning outcomes and student learning outcomes have been assessed and submitted.

23. Beyond letter grades, how does your program define student success at the course and program level?

Beyond letter grades, the Department defines student success in accordance with the definition given by the California Community Colleges Student Success Task Force. Success is defined as:
- Percentage of students in our program that complete their educational goals
- Percentage of students in our program that earn a certificate or degree, transfer, or achieve transfer-readiness
- Number of students in our program that transfer to a four-year institution
- Number of degrees and certificates awarded

Math is not a major that most students pursue. However, Math does support basic skills level students, CTE students, and students transferring in other programs. The department offers courses up to four levels below transfer. One measure of success is the proportion of students who move up from basic skills to a college level math course. Math is a general education requirement for our local degrees, CSU-Breadth, and IGETC. We do our best to ensure that students satisfy their math requirements for general education. While students typically do not major in math, it is a requirement for other programs such as engineering, computer science, phycology, sociology, economics, business, geology, kinesiology, physics, biology, nursing, and many certificates. We also measure student success by our program learning outcomes which tie into the institutional learning outcomes.

- Solve problems using mathematical symbols, operations, and techniques appropriate to the course content and level of study.
- Apply appropriate technology including calculators and computers to the solution of mathematical problems.
- Demonstrate computational, estimation, and problem-solving skills.
- Construct mathematical models of physical problems, draw conclusions from these models, and communicate their conclusions.
- Formulate and test mathematical conjectures.
- Adapt general mathematical techniques to course-specific problems

24. How have the program’s assessments and discussions produced a positive impact for student success? Please share your success stories.
The department engaged in multiple discussions last year about SLOs, which has given the faculty time to reflect on the findings. This gives the faculty a chance to become better educators as we think about ways to engage the students and find ways to enhance student success. These efforts are ongoing.

In courses where there are clear challenges to students based on student success rates and SLO assessment data, the department immediately begin discussions in identifying the cause and the remedy. One solution, is too reflect on SLO data results and ask ourselves whether we are allocating sufficient time and focus in the instruction of that topic. The course that has historically had the lowest success in the department is Math 1, pre-calculus algebra. The department thought it best to form a committee and have instructors teach the course consecutively for several semesters to determine the most effective practices and strategies that will lead to improved student success. Once those practices are identified, those individuals would have discussions with all faculty so that they can share in that success. We would then follow-up with further assessments and discussions to verify that success.

25. Based on the assessment results and your department’s discussions, please explain why the program thinks students are, or are not, achieving the outcomes. What changes has the program made or is it planning to make to improve student success? (Some areas for consideration are Curriculum, Pedagogy, Technology, Learning Environment)

- Student placement is an issue. Students who are under-placed have heard the material before and often “tune out,” do not show up to class, and are not committed. Students who over-placed are not adequately prepared for the course they are taking. In the last academic year, this academic year, and the next few, the department is working on implementing multiple measures to provide students with the most accurate placement.

- Faculty need to teach more to an affective domain. Success is lowest in basic skills and some first level transfer courses. Many students in those courses have not had a positive experience in math or found it interesting. Faculty need students to buy-in to learning, be accountable, and be dedicated.

- Math is often taught as a solitary subject. With social media, students are used to being connected and exposed to all sorts of stimuli. We encourage faculty to incorporate group work and other activities such as educational games in the classroom.

- For student who have not had math in over a year, they often forget the prerequisite knowledge. The department has two ½ unit, hybrid, boot-camp style courses that help prepare student for elementary and intermediate algebra that we offer during summer and winter session. This semester we are creating two more for students entering pre-calculus, trigonometry, and first semester calculus.

- The department sometimes reviews the content of the courses and decides how to most effectively allocate its time so that faculty are not spending too much time on an unimportant topic and more time on the core topics.
• On-going pedagogical discussions: Faculty must continuously collaborate and share ideas and strategies that are successful.

26. What institutional changes need to be made to help the program improve student success? (Some areas for consideration are Technology, Facilities, Professional Development, Support Services, etc.)

• Opportunities for embedding student support in classes (like supplemental instruction) would be a beneficial – particularly in basic skill classes.
• While the Math Resource Center on campus is excellent in providing students with drop-in tutoring, for students that have severe challenges in math, it is not sufficient. Tutoring centers that have great, qualified tutors, who can meet privately with students each week, would benefit that group.

Student Equity and Institutional Benchmarking (Instructional/Curriculum)

This year we are continuing the process of setting institutional benchmarks to narrow the achievement gap, and, as a College community, we will continue the conversation of how to improve student equity College-wide. The goal of the student equity questions is to identify any significant differences in student achievement so we can explore ways to address them. In order to assist you, the Student Success Team has identified research based effective strategies as options from which to choose. You may also select other strategies. The menu of strategies identified by the Student Success Work Team can be found by navigating to: Student Success Strategies.

27. The course completion and course success rates for your program over the last five years are available broken down by different demographic categories in Canvas – Program Review – Data module in the spreadsheet: Five_year_course_data. What do you notice in this data?

• Over the last five years, Math’s completion rate has been stable at about 80%, but its success rate has increase slightly. The first two years of data show success to be about 60% whereas the latter three years show success averaging 63.5%. These jumps coincided when the department hired more full-time faculty.
• If you break the data down by age, the older the student is, the more likely they are to complete a course and succeed in a course. The one exception are students 19 and under. Below is the data for the last five years. It has been consistent over that period.

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt; 19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion</td>
<td>87%</td>
<td>83%</td>
<td>87%</td>
<td>88%</td>
<td>86%</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>Success</td>
<td>68%</td>
<td>63%</td>
<td>70%</td>
<td>73%</td>
<td>72%</td>
<td>75%</td>
<td>79%</td>
</tr>
</tbody>
</table>
• Amongst gender, both groups saw modest increases in success of about 3% each. However, females typically outperform males by about 5%.

• There are obvious and consistent differences with regards to ethnicity. Below is a table of the five-year break down.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Afr Am</th>
<th>Am Ind</th>
<th>Asian</th>
<th>Filip</th>
<th>Hispanic</th>
<th>Multi</th>
<th>Pac. Isl</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion</td>
<td>79%</td>
<td>84%</td>
<td>91%</td>
<td>85%</td>
<td>81%</td>
<td>84%</td>
<td>80%</td>
<td>86%</td>
</tr>
<tr>
<td>Success</td>
<td>50%</td>
<td>54%</td>
<td>80%</td>
<td>66%</td>
<td>55%</td>
<td>64%</td>
<td>59%</td>
<td>68%</td>
</tr>
</tbody>
</table>

While all ethnic groups saw some increase, the largest increases were amongst Asians, Whites, and those that identified as multi-raced. Obviously we want to move towards a positive increase amongst the other ethnic groups as well.

28. How successful was your program in increasing the achievement rates in course completion and course success for Latino and African American students between the 2014/15 and 2015/16 academic years? If successful, please explain to what you owe your success. What do you plan to do to improve or continue to improve the achievement rates?

Although the increase in success and completions for African Americans and Latinos are modest, there are some changes in the department that may have contributed to that success. First, we have hired additional full-time faculty. While this is not universally true among all full-time faculty, the current full-time faculty members in the math department are very effective instructors. Second, the Math Resource Center has expanded its hours and the number that it has available. Thus, it serves a larger population of students. Lastly, there is considerable data to support that inequities in achievement are linked to economic status and lack of educational resources. African American and Latinos make considerably less than Asian Americans and Caucasians. The department has made a considerable effort in the last couple of years to reduce textbook costs and other supplements required for a given course. It is our hope that these materials do not serve as a barrier in students’ success and retention. We are continuing to work on reducing material costs for our classes. In particular, we are looking at open-source materials.

29. The data provided in Canvas – Program Review – Data module in the spreadsheet: Five_year_course_data includes the overall totals/percentages for the 2015/16 year. Between the 2015/16 and 2016/17 academic years the college goal is to increase by one percentage point in course completion and course success rates. Use the provided data to identify your new goal for next year. What actions is your program planning to take to help achieve this benchmark? How can your program partner with student support services such as the Office of Student Equity, the Student Success Team, Tutorial Services, etc. to achieve this goal?

The ultimate goal is to increase success from 63% to 64%. There are several components that are expected to help facilitate that success.

• The department is expecting to add one to two full-time faculty to start during the 2017 – 2018 academic year. This will help the college in providing students with talented and experienced instructors sensitive to the needs of students.
• STEM Core is expected to expand and accelerate students into transfer level courses with the aid of a student support specialist.
• The department is planning to advertise its acceleration courses, Math 104R and 106S, better. Success in those courses is higher than in traditional pathways.
• In the next academic year, more ½ unit prep courses will be offered. The goal is that this will prepare our students better in the first year transfer courses of pre-calculus, trigonometry, finite math, and applied calculus.
• First Year Experience is expanding its course offerings. That program tends to benefit underrepresented groups.
• First Year Experience courses will be receiving the benefit of embedded tutoring to assist students with regard to content and improved study skills.

Conclusions

30. Please describe any notable accomplishments since the last program review.

• Textbook costs are dropping. Math eliminated the use of any textbooks the cost over $200. Further, we negotiated with publishers, adopted less extensive textbooks, expanded the options of electronic textbooks, and opted for more paperback books. Starting this academic year, textbooks costs are considerably lower than they were last year – many are under $100.
• The department began of faculty mentoring program for part-time faculty that mimicked the tenure process. Associate faculty that have participated have welcomed it and we are hoping to expand it further.
• Our below transfer level acceleration course now can be applied as credit for an AA/AS degree.
• Math offers about 900 units of courses in an academic year. A spreadsheet composed of terms, courses, days, times, and enrollment was put together to best plan scheduling for future semesters based on student need/demand.
• The curriculum for to two new courses (Math TMP1 and TMP2) was written with the goal that they will be offered starting in winter 2018.
• The mathematics AS degree was revised an approved by the state. This degree prepares student for a major in mathematics at any CSU/UC and is no longer a high unit degree.
• The department validated its placement test and analyzed that data. The placement test scores were subsequently adjusted and additional multiple measures were made to increase the chances that a student is properly placed.
• Winter 2016 was the first time the department offer Math 903P and 106P in a hybrid format, and with great success.
• Winter 2016 was the first term we offered our accelerated geometry course, Math 104R. This course was also very successful.
• The curriculum for a new online course, elementary algebra, was written and approved. This semester, fall 2016, is the first term it has been offered.
First year experienced trained an additional instructor and offered an additional math course.

STEM Core acceleration program was developed (in collaboration with Growth Sector and the engineering department) and is being implemented this academic year. This program identifies strong students that are in math classes below transfer level, have an interest in STEM fields, and accelerates them in a supported program.

The section notes in the schedule of classes were cleaned up so that they are clear and consistent between sections.

It was decided to eliminate late-start classes because of relatively lower enrollment and success.

Overall success in courses has increased.

31. Is there anything else you would like to report that was not included in the answers to the previous questions?

This should cover it. Question #32 covers what the Math Department needs the most. We appreciate and support this process and welcome your feedback.

32. What general conclusion(s) do you draw about your program's strengths and challenges at this time?

The most major challenges facing the math department are the need for full-time faculty, office space, and classroom space. In examining the last academic year, this one, and the next, the math department is growing. This is happening even though college-wide enrollment is down. Math has demonstrated several times that it has the student body to add additional sections, but lack the faculty to support those sections. High proportion of full-time faculty teach overloads, many in excess of 1.3. Despite calling other colleges/universities and expanding are part-time pool several times a year, the department cannot keep up with number of instructors required to teach the courses it offers. Each semester it is a struggle to keep all sections staffed. Let me be clear, it is not for a lack of trying. This is a missed opportunity for the college to grow. If students come and take math, they certainly will come and take other classes as well. With this expansion, there will be a need for additional classroom and office space.

33. Please enter the date on which you submitted this program review Self-Study (Please be sure to press submit after completing this survey):

On time!!!
November 4, 2016

Now that you have reflected back on the previous academic year and set goals for the next year, please proceed to fill out the Budget and Resources Allocation Survey narrative. This narrative looks ahead to 2017/18 and future years. It can also alert the Budget and Resource Allocation Committee to needs that can be met during the current academic year if resources are available.
PROGRAM REVIEW

BUDGET AND RESOURCES ALLOCATION SURVEY
LOOKING AHEAD TO 2017-2018
Budget and Resource Allocation Request

The Budget and Resource Allocation narrative section of the program review must be submitted together with the Program Review Self-Study by Friday, November 4, 2016.

Your program will be asked next semester to provide to the Budget and Resource Advisory Council (BRAC) a complete organizational budget for the next fiscal year; information supplied in this Program Review narrative is used to support substantive changes to budgets, especially as relates to new or significantly increased expenditures, equipment, software & information systems, and staffing. You may find some answers to your questions and other useful information at BRAC’s website. For definitions, examples, and other information pertaining to this Budget and Resource Narrative Self-Study, you may download the current BRAC “Budget Development Handbook”, as well as other supporting documents, from the Documents folder of BRAC’s website. If you have questions regarding this Budget and Resources Self-Study, please contact the Budget and Resource Advisory Council (BRAC).

General

1. What is the name of your program?

Mathematics Department

2. Who is the primary contact person for this program review?

Chris Dyer (Math Department Chair)

3. Please list the names of others who will be collaborating on this program review:

Alyson Butcher (Full-time Math Faculty, Math Resource Center Coordinator, SLAPEC Representative)

4. Examining your current fiscal year budget, has the funding been adequate to meet the needs of your program? If not, please explain.

- The Math Department funding has been barely adequate with supplies. The biggest need is dry erase markers that we lecture with. The department employs roughly 50 full- and part-time faculty each semester to its courses. There was a slight surplus in supplies from previous years, but that surplus is nearly exhausted.

- The Math Resource Center’s current fiscal year budget of $22,500 has been adequate to meet the needs of math students who use the MRC. We are able to have almost every hour the MRC is open covered by two tutors (mostly two paid student tutors each hour, but sometimes one paid student tutor and one faculty member). This allows us to help students in the MRC within at most 10 minutes of the time they sign in to request help.
5. **If you are requesting additional budget and/or resources for the 2017-18 year, explain how those resources will be used, especially to improve learning outcomes and program goals. Please provide specific examples and rationale.**

- The department is requesting additional supplies to teach with. 3000 dry erase markers will be required to replenish our yearly stockpile. For the 2015-2016 academic year, other funding was secured to purchase those markers. With that funding exhausted, we require a substantial increase in funds from last year’s budget. In addition, the math department has moved several of its classrooms from the Villages into Cilker. Staplers, door displays and pencil sharpeners are needed for those classrooms.

- The Math Resource Center is not requesting any additional budget beyond our current allocation of $22,500. We would simply like to keep our budget for the 2017-2018 year at the same amount of $22,500.

**Note:** Please describe and explain below only those resources that represent a substantive change to your organization’s budget, especially as relates to new or significantly increased expenditures, equipment, software & information systems, and staffing.

**Personnel**

If your program requires personnel **beyond** staffing currently budgeted, enter your additional full-time and part-time personnel resource needs here. Any needs that require you to request faculty hiring prioritization must be included in this program review.

However, it is not the scope of the program review and annual budget allocation process to fund resources for additional full-time personnel. Requests for new permanent employee positions must be made to the President’s Cabinet and District’s Executive Management Team through coordination with your Division/Program Chair. Only resource requests for hourly employees will be considered and funded based on the information you provide in this program review.

6. **Personnel – Full-time Instructional**

Please describe the specific position(s) and the number of positions only. (For example: We need two additional Mathematics instructors.)

This academic year the Math Department requested two additional full-time instructors and was granted only one of them. Historically, the department has had 18 instructors. Since the recession in 2008, the number of full-time faculty shrunk to 11 in 2009, but by the start of the next academic year we will be up to 16. The department also maintains a pool of nearly 40 part-time faculty with about 30 of those teaching in a given semester. Nearly half of all our FTEF is taught by part-time faculty. The department’s FTEF need
has grown this year and will continue to grow into the next academic year. Although the department is hiring an instructor, this increase will only offset the additional FTEF the department requires to grow for the 2017 – 2018 academic year. Further, one of our full-time math faculty, Gretchen Ehlers, is 1.0 release time for coordinating the first year experience (FYE) program and Student Success Coordinator, Rebecca Wong is on 0.5 release time for being the Title III Director, Alyson Butcher receive 0.25 release time for functioning as the MRC Coordinator, we have department chair, faculty on sabbatical or banked leave. Even though some projects are temporary, because of the size of the department, at 4.0 FTEF are allocated to some four of reassign time each year. The department, and the more than five thousand students it serves every year, will benefit from two additional full-time faculty members. One of the challenges our department has is staffing all of its classes. Most semesters, we can offer additional class, but lack faculty members to teach them. It is our hope, that with a larger full-time faculty base, that less than 40% of our FTEF will be taught by part-time faculty.

7. Personnel – Permanent Non-Instructional
   Please describe the specific position(s) and the number of positions only. (For example: We need two additional laboratory aides or classified staff.)

   None

8. Personnel – Part-time Hourly
   Please describe the specific position(s), the total number of hours for each position, and the hourly rate, if known. (For example: We need two additional part-time laboratory instructional aides to work for 40 hours per week per semester estimated at $15 per hour for an estimated total of $19200 per academic year)

   None

Materials and Supplies
   Please indicate only the resources being requested that are above the program’s base-level, currently budgeted recurring needs. Note that “Instructional” indicates the expenditure is for items used to support direct student instruction, i.e. – used by students in the classroom or lab. “Non-Instructional” are items not used by students.

9. Materials and Supplies – Instructional

10. Materials and Supplies – Non-Instructional

   The department is requesting $3400 for the following items to support 50 full- and part-time instructors and thousands of students.
• 3000 Dry-erase markers to lecture with. The cost is $9.89 per dozen for a total of $2475.
• 52 erasers for white boards. Four per classroom times thirteen classrooms. Cost is $2.69 per eraser, times 40 erasers, for a total of $140.
• 144 AAA batteries for instructor’s graphing calculators. The cost is $70.29 for one pack of 144 AAA batteries.
• Six electric pencil sharpeners for new rooms in Cilker. The cost is $18 per sharpener times six sharpeners, for a total of $108.
• 50 Post-Its. The cost is $24 per pack of 24 times two packages for a total of $48.
• 50000 standard staples. The cost is $1.64 per pack of 5000, times 10 packages for, a total of $17.
• Ten staplers for classrooms. The cost is $2.29 per stapler, times ten staplers, for a total cost of $23.
• 500 #2 pencils. The cost is $8 per package of 48, times ten packages, for a total cost of $80.
• 20 Azar displays wall-mount U-Frame acrylic sign holders (clear), for each classroom and the Math Resource Center. The cost is $135 per pack of ten, time two packages, for a total of $270.
• 100 notepads. The cost is $16 per package of 12, times eight packages, for a total of $192.

Other Operating Expenses and Services
Please indicate only the resources being requested that are above the program’s base-level, currently budgeted recurring needs.

11. Other Operating Expenses and Services – Contracted Services

None

12. Other Operating Expenses and Services – Dues

None

13. Other Operating Expenses and Services – Memberships

None

14. Other Operating Expenses and Services – Consulting Services

None

15. Other Operating Expenses and Services – Repair / Maintenance

None
16. Other Operating Expenses and Services – Travel and Conferences. Note that Faculty Travel and Conference funding is covered by ACE contract, which provides $200 per faculty member annually.

Conference funding is scarce. We recommend that an addition $3000 be placed in our general fund to allot for a few select faculty to attend significant conferences to inform, keep the department current, and enhance student success. The largest and most significant mathematical conference, the American Mathematical Association of Two Year Colleges (AMATYC), costs over $1500 to attend (conference fees, travel, lodging, etc.). This conference is for four days and is generally out of state. Most faculty cannot attend because of those costs. Another important conference, On-Course, is a workshop and forum where innovative and different educational approaches are being applied to all educational levels and disciplines. Approximately five of our faculty attended (out of 15 full-time faculty and 40 part-time faculty) this workshop, often paying for it out of their own pockets. As On Course continues to evolve, we hope that faculty can continue to participate in learning how this methodology can lead to student success. In the Math Department, we must keep up to speed with changing technology, different pedagogical approaches to the over 25 different classes we teach, distance education, acceleration pathways, evaluation of placement tests, and receive continuous updates from the state and transfer institutions.

**Equipment**

Please indicate only the resources being requested that are **above** the program’s base-level recurring needs.

17. Equipment – Computer and Technology (Computers of any type, tablets, printers, accessories).

Indicate whether the equipment is used for direct student instruction or for other office or administrative, non-instructional purposes.

None

18. Computer Software

List both recurring software license fees and any new software purchase requests. Also indicate whether the software is used for direct student instruction or for other office or administrative, non-instructional purposes.

None

19. Equipment – Other

Please indicate whether the equipment is used for direct student instruction or for other office or administrative, non-instructional purposes.
None

Other

Please indicate only the resources being requested that are **above** the program’s base-level recurring needs.

20. Other – Other

None

21. Please enter the date on which you submitted the Budget and Resource survey (be sure to click submit when you are done):

Friday, November 4, 2016