INSTRUCTIONAL COMPREHENSIVE PROGRAM PLANNING AND REVIEW (CPPR) FOR 2022

Only to be completed by those programs scheduled for the year according to the institutional comprehensive planning cycle for instructional programs (i.e., every four years for CTE programs and five years for all other instructional programs), which is produced by the Office of Instruction. Faculty should meet with their dean prior to beginning this process. Training is available to support faculty completing this work.

Cluster: AHMA **Program:** Mathematics **Current Academic Year:** 2021-2022
Last Academic Year CPPR Completed: 2016-2017 **Current Date:** 1/13/22

NARRATIVE: INSTRUCTIONAL CPPR

Please use the following narrative outline:

I. GENERAL PROGRAM INFORMATION

Program Mission (optional)

The mission of the Mathematics Program is to offer high quality mathematics courses taught by expert faculty to address the mathematics requirements of students' diverse educational goals, including: learning foundational skills, earning an AA/AS, AD-T Degree, transferring to a four-year institution or obtaining a CTE certificate.

Brief history of the program
Include significant changes/improvements since the last Program Review

General Background

The Mathematics Program offers a broad curriculum to serve a diverse student population in meeting their educational goals.

We offer a variety of transfer level courses including college algebra, pre-calculus algebra, trigonometry, statistics, mathematics for the humanities, math for elementary school teachers, business calculus, a university-level calculus sequence, and linear algebra with ordinary differential equations. We have also offered pretransfer level courses for those students who want to improve their foundational skills and earn vocational certificates or associate degrees.

The Mathematics Program is designed to give students the analytical and logical thinking skills necessary for solving problems in a variety of contexts such as science, business, computer programming, mathematics, social sciences and engineering. There is one degree associated with our program, the AS-T in Mathematics.

Significant Changes and Improvements from Fall 2018 through Spring 2022

AB705 and MMAP

The most impactful changes in the Math Program are related to student placement. In Fall 2018, Multiple Measures Assessment Placing (MMAP) was implemented for student placement in mathematics courses. MMAP took into account student high school coursework and GPA for placement and eliminated the need for any placement tests. Traditionally, the bulk of incoming students were placed into intermediate algebra. MMAP helped a larger number of students start in more advanced courses. Then AB705 was passed, and the Mathematics Division worked hard to implement the new law. AB705 requires community colleges to maximize the probability that a student will complete transfer level English and transfer level Mathematics within the first year after initial enrollment. Partial implementation of AB705 began Spring of 2019 with full implementation in Fall 2019. All students entering Cuesta College may now enroll in first tier transfer level mathematics courses. Those who qualify, based on MMAP, may enroll in second tier transfer level math.

The Math Division helped create a Guided Self Placement tool to help students choose an appropriate course for their educational goals, based on their academic background and their area of study. Our Math Division, in collaboration with the Student Success Center, developed and enhanced many support opportunities to help students succeed as they began in more advanced courses. Some of these efforts included developing a support course in statistics, creating a Statistics Lab with workshops and tutoring support in partnership with instructors, using embedded tutors, incorporating just in time skills in courses, providing more video and other resources to students, and expanding tutoring hours and modalities.

AB705 continues to evolve with new guidelines from the Chancellor's office and we anticipate further evolution to student placement. Implementation not only shifted the largest enrollments from intermediate algebra to statistics, but it made a significant impact on the number of students completing a course that satisfied their educational goals within one semester.

For a basis of comparison, the PPIC chart of data for Cuesta College below shows the enormous positive impact the Math Division's implementation of AB705 at Cuesta College had on throughput, the successful completion of transfer level math. The additional column on Fall-to-Fall throughput for 2019* was taken from the Transfer Level Gateway Completion Dashboard.

TABLE B6 from A New Era of Student Access at California's Community Colleges Technical Appendices

Table of access, throughput and racial equity in transfer-level math by college

College name	Share of first-time math students starting in transfer-level (%)		One-term throughput rate (%)		Fall-to-fall throughput rate (%)		Proportionality index Latino students	
	2015	2019	2015	2019	2015	2019	2015	2019
Cuesta	28	81	17	47	27	56*	0.72	0.83

Equity in Teaching

Note in the table above, the comparison of data from pre and post MMAP/AB705 shows an improvement in the proportionality index for Latinx students.

In addition to the hard work the division has devoted to successfully implementing AB705 with all of the associated increase in student support, our division has significantly increased a commitment to equity in teaching and reducing equity gaps. Many of our instructors have attended a variety of equity focused institutes and workshops including: Equity Minded Teaching Institute in summer 2018 and The Leadership Institute for Equity in Teaching Mathematics in summer 2021 (both hosted by the Center of Urban Education), The Equity Summit 2019, The Equity Academy in April 2019, JEDI Academy at Cuesta College (Justice, Equity, Diversity, and Inclusion) 2021, The Hispanic Association of Colleges and Universities annual conference, breakout sessions at Math conferences focused on equity and social justice such as Dr. Rochelle Gutierrez' presentation on "Rehumanizing Mathematics: A Vision for the Future", presentations brought on campus like Ali Michael, and equity focused FLEX workshops. As a result, our faculty have been sharing some of the learned best practices at our Math Division meetings and retreats throughout the school year and have been working to implement various strategies in our classrooms. During 2019-2020 school year, our division had a book discussion on Grading for Equity, by Joe Feldman. During 2020-2021 school year, several math faculty attended one of the sessions offered by CA Community College Equity Leadership Alliance hosted by USC Race and Equity Center and participated in the follow up Cuesta round table discussion with managers, staff and faculty. Many math faculty have revised syllabi to be more welcoming to first generation college students and made changes in pedogogy. During 2021-2022 school year, we have made "teaching with equity" a regular agenda item that includes a mini presentation and dialogue sharing practices related to six elements for equity minded course design.

Distance Education

Prior to COVID, we had begun to increase the number of our courses that were offered in the online modality and had several faculty go through the pre-pandemic certification course aimed to train online instructors. During 2020, when all courses were offered online, the majority of full and part time math faculty became fully DE certified, and all instructors became at least temporarily certified. As we are returning to on campus presence this year, we are trying to reach the balance of student demand in the online, hybrid, and face to face modalities. Faculty have gone to great lengths to develop effective online experiences for students. We have devoted many division meetings to discuss and share ideas, effective practices, and technology tools with each other. Our class schedule will continue to look significantly different as we move forward and will better serve our students, who tend to have full lives with work, family, etc.

Dual Enrollment

Since our last CPPR, the Math Division has begun to offer dual enrollment courses at Atascadero High School, Nipomo High School, and Paso Robles High School. These offerings include Math 242, Math 247, Math 265A, and Math 265B. Dual enrollment expansion became possible when teachers were identified with appropriate minimum qualifications.

CMC

In Spring 2019, the Math Division began offering courses at CMC. This enabled current students at CMC to start finishing their degrees. One Math 230 course was offered at CMC Spring 2019. Since that time, the offerings have increased to include two sections of Math 230 and one section of Math 247 each semester. These math courses have contributed to more degrees being awarded from the CMC site.

Program Downsizing

Although AB705 and the increased online offerings have been highly beneficial for students to move through their math requirement more quickly in a way that fits their life, it brought with it the challenges of downsizing the number of sections of math needed in the schedule. Unfortunately, high quality adjunct faculty who have worked with us many years are now experiencing inconsistent work opportunities.

North County Campus

While the entire North County Campus has seen a decline in enrollment since the pandemic began, the Math program has been especially hard hit. This decline in enrollment started before the pandemic hit. The bulk of the classes offered on the NC campus have historically been pre-transfer level classes. With MMAP and AB705 those classes are no longer being offered, leaving us with very few classes on the schedule. Then with the pandemic, there was a large increase in Distance Ed classes offered by the division, and many students are now choosing to take their classes remotely. As a result, our NC offerings have decreased to only 5 classes in Spring 2022 (all with fill rates under 50%). For reference, in 2015, we offered 21 classes a semster. Unfortunately, if things continue as expected, it is likely that we will drop to only 3 or 4 classes in the coming semesters.

Number of classes offered on the North County campus:

School Year	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019	2019 – 2020	2020 – 2021	2021 - 2022
# Classes offered	41	37(?)	34	27	23	n/a	10

Facilities

In Spring 2018, the Math Division moved into the new educational building on the San Luis Obispo campus. This was the first time in decades that the majority of math faculty had offices near each other, which has allowed for great hallway discussions and collaborations when we are not socially distancing for the pandemic. The Dr. Frank R. Martinez building is truly state of the art. Classrooms are equipped with smart technology that allows instructors to write on computer screens using a stylus. Students can actively follow along when taking notes. Many classrooms include technology to allow sick students to attend remotely. Adjustable desks give students an opportunity to engage in meaningful discussions with other classmates. The offices area upstairs provide multiple work areas for students. Computers are available so students can complete online homework and other virtual tasks, which are becoming ever more common. Group-study rooms encourage students to study with one another and share ideas outside of class. In summary, these facilities give students an edge in learning new skills when time is increasingly scarce.

List current faculty, including part-time faculty

Full Time Faculty

Denise Chellsen (Division Chair), Shelby Burnett, Gabriel Cuarenta-Gallegos, Bill Demarest, Jeff Gervasi, Michael Kinter, Matt Knudsen, Greg Lewis, Ryan Lowenstein, Jodi Meyer, Michael Mogull, Jen Sanders-Moreno, Guillermo Alvarez Pardo, Robert Schwennicke, Mark Turner, Joseph Vasta

Retired since last CPPR: Marie Larsen, Barb Miller, Peggy Wright, Julie Hoffman-Rose

Resigned since last CPPR: Kyi Zin

Part Time Faculty

Current part time faculty*: Bryce Jenkin, Michelle Kaul, Clark Kerr, Rebecca Michaud, Kristen Riggenbach, Michael Serpa, Ashley Shimabuku, Kathryn Voltmer, Anne Woods, Claire Dostal*

Part time faculty from earlier in the CPPR cycle: *Anna Kopcrak, Amanda Lombard, Suzanne MacArthur, Mir Mortazavi Izad, Robert Satterwhite, Don Volle, William Cross, John Fetcho*

The Process of Program Review

The Division Chair organized the process of Program Review with the assistance of program faculty. Information and data links were sent electronically to the entire Division soliciting input to begin the process. Shared documents on Microsoft Teams were used for group input on the written responses. Course coordinators were responsible for analyzing their individual course data, checking and updating the curriculum, and soliciting input from instructors who recently taught the course. Division meetings with full time math faculty were used to analyze the Tableau data from Institutional Research, discuss our accomplishments and continued challenges in light of AB705 and the pandemic, and discuss ideas of improving our program with a mind toward equity, using disaggregated data.

II. PROGRAM SUPPORT OF DISTRICT'S MISSION STATEMENT, INSTITUTIONAL GOALS, INSTITUTIONAL OBJECTIVES, AND/OR INSTITUTIONAL LEARNING OUTCOMES

Mathematics Supports the Mission Statement

The Mathematics Division is committed to supporting all students in achieving their educational goals by providing math courses that are grounded in problem solving strategies, and that develop critical thinking skills. Nearly every student's education goals require a math course, which is why the Mathematics Division provides a variety of courses, from algebra to differential equations, to help students achieve their individual goals. In the era of AB-705, we have helped an increasingly diverse population of students succeed in our transfer level courses by including just-in-time review, additional resources for remedial learning, and support courses.

Mathematics Supports Institutional Goals

Institutional Goal 2: Completion

Increase the number of students earning an Associate Degree including Associate Degrees for Transfer (ADT), credentials, certificates, or specific job-oriented skill sets.

With the implementation of AB705, more students are completing a math course applicable to their degree. When viewing the Tableau tool on the California Community College Dashboard, our one-year throughput (successfully completing transfer level mathematics) went from 27% in 2016 – 2017 to 56% in 2019-2020. When limiting it to single semester throughput, it went from 18% in 2016-2017 to 50% in 2019-2020. Since mathematics has traditionally been a barrier to student degree completion, these improvements in throughput will undoubtably have a significantly positive impact on degree completion.

Institutional Goal 4: Unit Accumulation

Decrease the average number of units accumulated by Cuesta College students

With the implementation of AB705 and MMAP, many students are finishing their math requirement with a single 3- or 4-unit course instead of potentially 9 -to 15-units (when taking or repeating algebra courses prior to taking a transfer level course). This should help significantly reduce unit accumulation for a large number of students.

Mathematics Supports Institutional Learning Outcomes

ILO 1: Personal, Academic and Professional Development

The mathematics program helps students develop essential skills necessary for academic success and successful employment including the ability to work with fellow students in a group setting, the ability to manage time, and the ability to solve complex and challenging problems.

ILO 2. Critical Thinking and Communication

Students learn to interpret complex information when they translate word problems into mathematical models. They also must interpret their solutions in terms of the original problem and communicate their results to answer the questions asked in the problem.

The mathematics program helps students evaluate their own thinking processes and those of others by having students consistently discuss their thought processes with their fellow students, and then listen to how their fellow students approached a problem which helps our students learn how to communicate complex information in a clear and logical manner.

ILO 3. Scientific and Environmental Understanding

Students solve equations using mathematical models and must interpret and draw conclusions based on those solutions to answer questions regarding an application. In statistics, students perform computations for various statistical tests and must draw conclusions regarding the population in question.

Students construct proofs in geometry, and they analyze proofs and derivations in that and other trigonometry, calculus, and linear algebra classes. Students in geometry and math for humanities also cover basic logic and consider the true/false values of logical statements.

ILO 6: Technical and Informational Fluency.

Students learn to analyze real world information in math courses. In many math courses, students are required to use technology to analyze equations and complex graphs in applied settings. Students in our program also become familiar with working with cloud applications through our use of Canvas and associated applications.

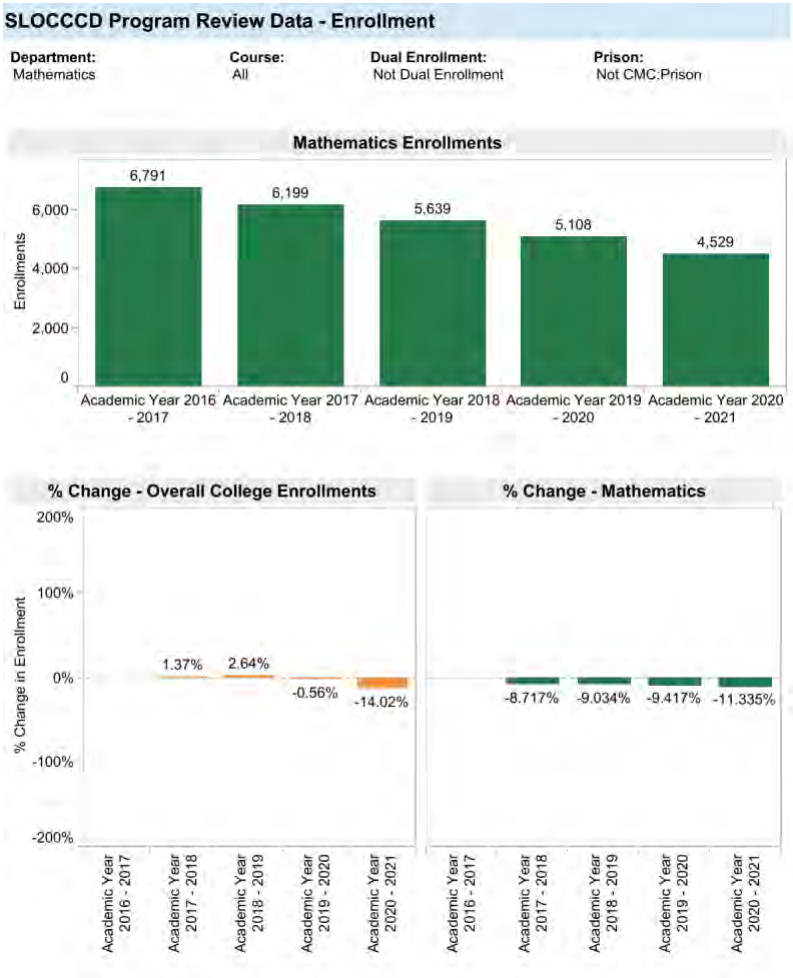
In statistics, students learn effective methods for collecting data and analyzing that data with graphs and numerical summaries. They are then able to make inferences about a larger group based on the sample data. When making inferences, they learn to discern between statistical significance and practical significance – that is, does this difference really mean something? They also learn to become critical observers of data analysis so that they can pick up any news

article or journal and be able to determine for themselves what the results were, how significant they were, and whether they should be trusted (based on the way the information was gathered). Students also become familiar with effectively using statistical software. They learn to produce graphs and numerical summaries, and how to make these graphs viewable for presentation. They learn to embed these graphics and summaries into common document formats – like Microsoft Word. By the end of the course, each student should be able to create a professional-looking document to relay information about data.

III. PROGRAM DATA ANALYSIS AND PROGRAM-SPECIFIC MEASUREMENTS (Where applicable the success metrics are aligned with the Student Success Metrics/SCFF).

ENROLLMENTS

Math Enrollment (excluding CMC and dual Enrollment)



Math Enrollments by Course

Enrollment	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
ALL Courses	6791	6199	5742	5344	4827
Math 127 (126A/B)	1034	715	484	316	180
Math 128	294	261	338	155	141
Math 147S				163	98
Math 220			36	79	76
Math 229/231	311	255	248	204	231
Math 230	156	169	362	606	470
Math 232	270	212	228	289	291
Math 242	630	584	586	501	488
Math 247(236)	1080	1123	1296	1678	1471
Math 255	144	124	138	148	160
Math 265A	283	302	404	321	357
Math 265B	208	205	231	236	238
Math 283	163	140	131	119	129
Math 287	137	111	120	114	114

The table above shows the enrollment broken down by courses. Math 127 data also includes anyone enrolled in 126A and 126B. Similarly, Math 247 includes enrollments for Math 236 for the one year that both statistics courses were offered (2016-2017).

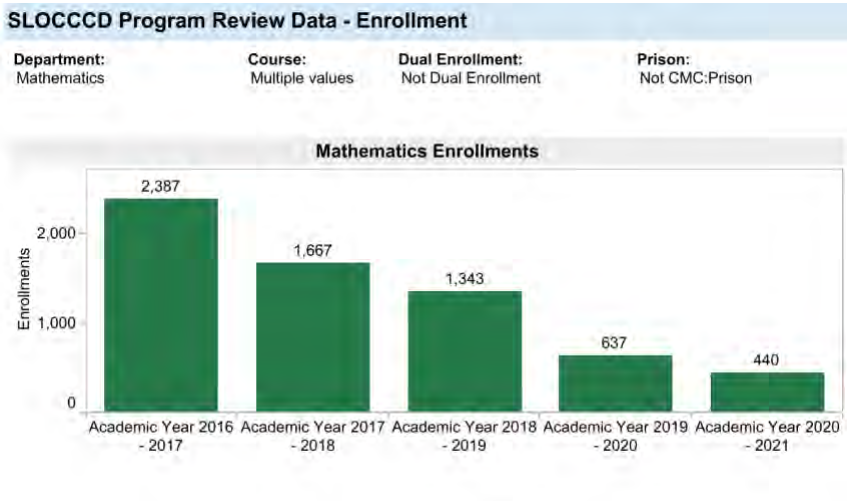
The headcount for Math has decreased over the last few years. In addition to the college's declining enrollment, a large contributing factor to the decline in math headcount is likely the result of our success and hard work in helping our students finish their math requirement in fewer semesters than they had in the past. Initially, we created a shortened pretransfer math pathway for non-STEM majors with Math 128, which grew in offerings with its peak enrollment in Fall 2018. Subsequently, new placement with MMAP during Fall 2018 and AB705 during Spring 2019 resulted in students starting at a higher-level math class, which for many non-STEM majors translated to taking a single 3- or 4-unit class rather than a series of 5-unit courses. We anticipate with the continued success of AB705 implementation and our increased collaboration with the Success Center, that our headcount will decline a little further over the next year or so and then will level off to a more predictable level.

An additional impact to enrollment numbers in 2019-2020 was the college's generous assignment of EW's for students who were failing courses due to the abrupt move online from

the pandemic. In 2020-2021, further decline in math enrollments reflected both the overall college decline in enrollments as a result of the pandemic and continued success with AB705.

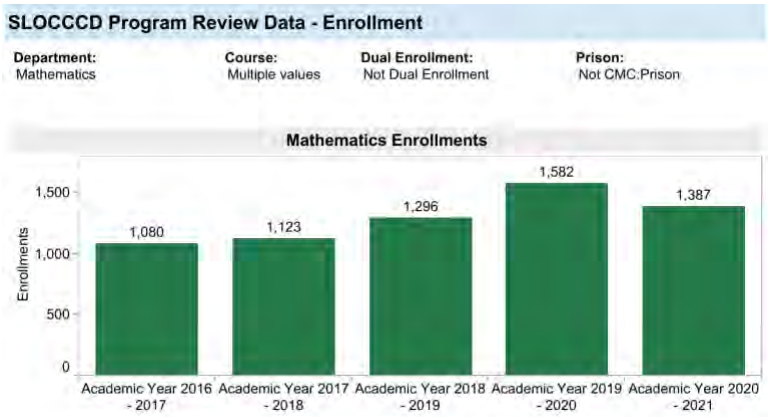
The decline in math enrollments was not consistent across all courses, as can be seen in the table for enrollments by courses, which is another consequence of the successful implementation of AB705. For example, pre-transfer level courses saw the largest decrease in enrollment with Math 127 going from a high of 1034 students in 2016-2017 to a low of 180 students in 2020-2021. However, enrollment in Math 247 increased from 1080 students in 2016-2017 to a high of 1678 students in 2019-2020. Additionally, Math 230 showed an increase in enrollment from 156 students in 2016-2017 to a high of 606 students in 2019-2020. Additional detailed information on course and course group enrolments can be found below.

Pre-Transfer Courses (Math 003, 007, 123, 127, 128)



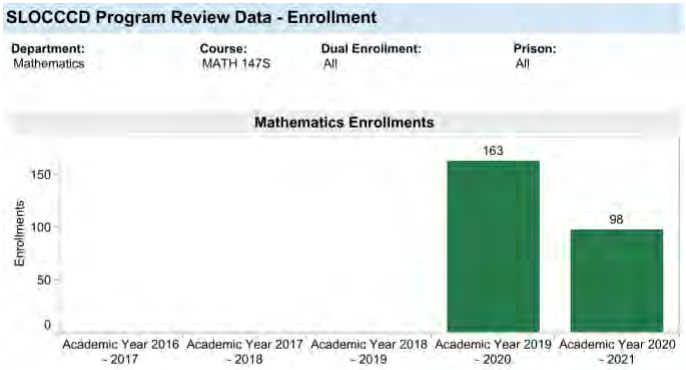
The implementation of AB705 has significantly reduced the number of students taking pre-transfer level math. In 2015-2016, the typical course most incoming students were placed in with the multiple measures placement (which included an assessment test) was intermediate algebra. Fall 2018, MMAP placed more students at higher levels of math by using their high school grades and coursework. Starting Spring 2019, incoming students were able to start right at transfer level mathematics with AB705. We anticipate these enrollments to continue to drop as many of these courses are phased out at the directive of the Chancellor's office.

Statistics (Math 247 and 236)



The implementation of AB705 has created a significant increase in demand for statistics, which is the required math course for most non-STEM majors. The decline in 2020-2021 (12.3%) reflects the overall college decline in enrollments due to the pandemic. Even with this one-year decline, our statistics enrollment has seen a 28.4% increase in 2020-21 as compared to 2016-17. Before the pandemic-related decline (in 2019-20), our statistics enrollment was 46.5% greater than it was in 2016-17. We anticipate larger enrollments moving forward with the phasing out of more pre-transfer level math classes.

Statistics Support (Math 147S)

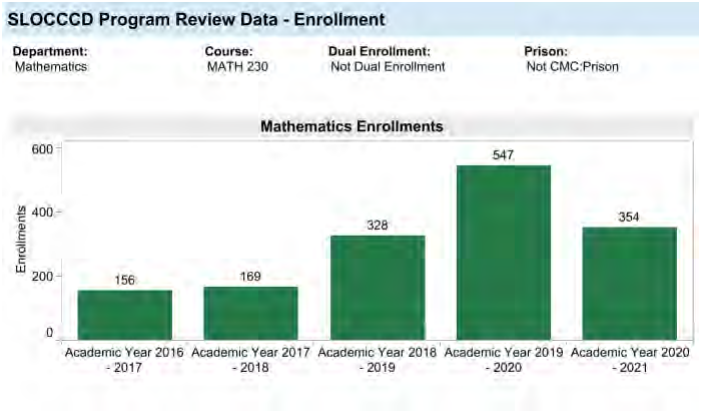


Math 147S has gone through many modality variations. The first year that the course was offered in 2019-2020 the course was only offered in-person both in the San Luis Obispo and the North campus. In the Fall of 2020, the course transitioned to fully online asynchronous because of the COVID-19 pandemic. In the Spring of 2021, out of the three sections offered, one section was synchronous online. Starting in the Fall of 2021, Math 147S was hard linked to a corresponding Math 247 course to more effectively support the students. Unfortunately, this change will likely have a negative effect on enrollment since students who are unable to attend synchronous or in-person meetings of the corresponding Math 247 course will likely choose a Math 247 course without a support class. Other variables to consider on the decline of

enrollment is the amount stress that the pandemic has caused our students who if given the choice to take yet another class during these challenging times, will likely choose to take only the required course to minimize the amount of time and work that an extra unit would add to their already challenging schedule.

The division has had discussions around making Math 147S a requirement for students who fall under a certain criterion, but the division feels that other support efforts, including the new statistics tutoring lab, have maintained the success rate for Math 247 at about the same level before the AB705 mandate. In the previous annual program review, the division had plans to follow-up on this topic by collaborating with the Institutional Research department to conduct a study on how students who would qualify to be placed in Math 147S have performed in Math 247 without it. The evolving format of the course has made it difficult to conduct such a study because of the ever-changing variables from semester to semester. This study will still be important to conduct as we transition back to normalcy post pandemic. The Math 147S coordinator will follow-up with Institutional Research on generating performance data for students who would be required to take the course for a given criterion but have chosen not to enroll in Math 147S. The coordinator will work with the division and statistics instructors to develop the criterion for requiring students to take Math 147S and provided it to the research department to conduct an analysis. The analysis will guide the division and college if it would make sense to require students to take Math 147S.

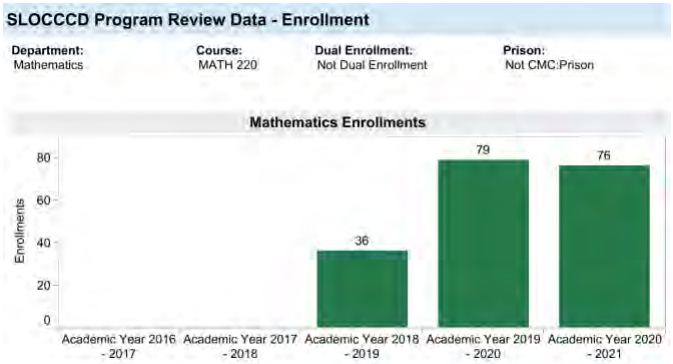
Math for Humanities (Math 230)



AB705 allowed open enrollment first tear transfer level courses starting Spring 2019 for both continuing students and new students. Math 230 was a popular course for students who had given up on math and/or were currently in a pre-transfer level math course to jump into since it does not require strong foundational math skills. It is now being recommended for some Associates degrees instead of 127 or 128. Although it had significant growth, in 2020-2021 we saw a decline from the 2019-2020 peak due to continuing students having already successfully completed the course and due to the change in in many popular non-STEM majors at Cal Poly to

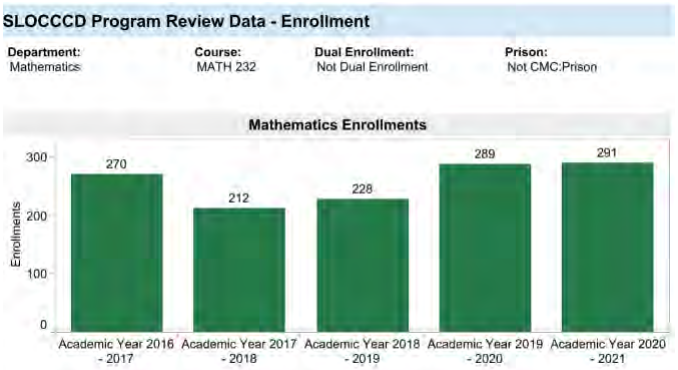
no longer require a second math class for admission, beginning Fall 2020. In addition, the college had a drop in enrollments in 2020-2021. As we continue to reduce pre-transfer level math courses, we anticipate this course will grow in demand.

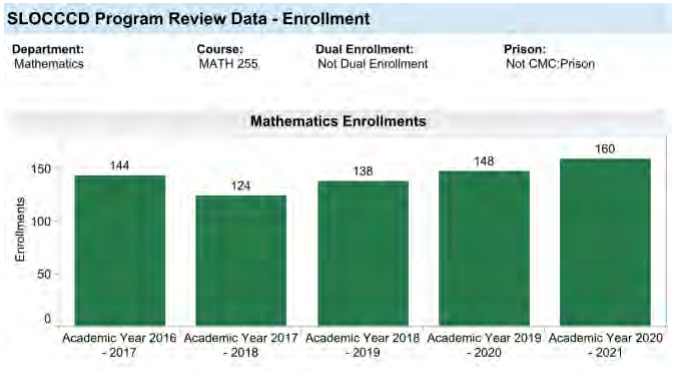
Math for Elementary School Teachers (Math 220)



The demand for Math for Elementary School Teachers grew quickly after the course was first introduced in the 2018-2019 academic year. The course is being offered every semester instead of once a year as originally planned due to this popularity.

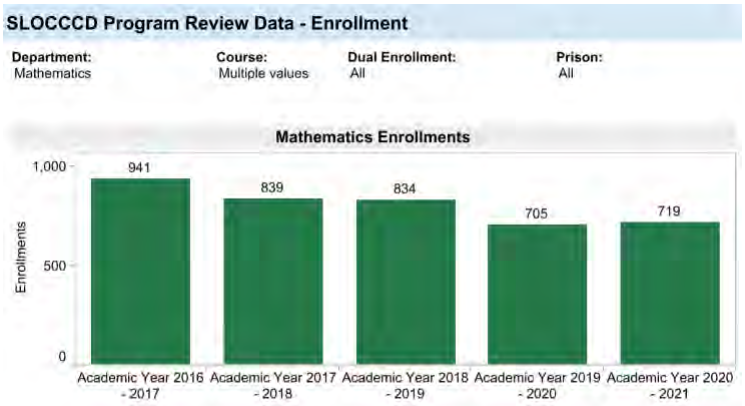
College Algebra (Math 232) and Business Calculus (Math 255)





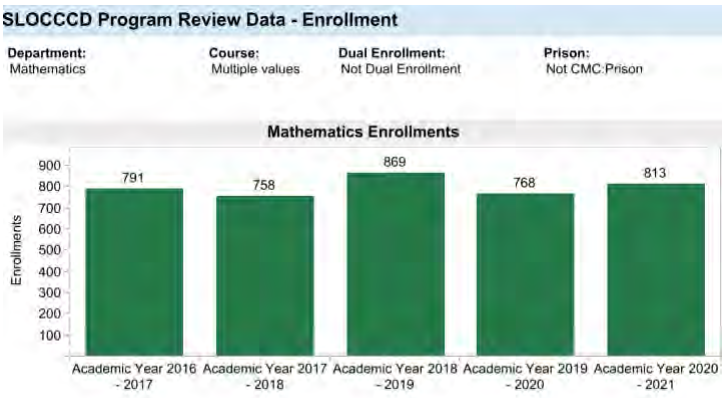
Previously, demand for Math 232 was declining due to change in requirements in many majors needing statistics instead of college algebra. Math 232 has experienced an increase in demand with the new allowance of Math 232 as an option for a pre-requisite for business calculus in addition to the more rigorous Math 242, precalculus. Math 255 is likewise experiencing an increase in demand with the new MMAP placement allowances and the more manageable pre-requisite of 232 as an alternative to 242. The increased enrollments in these niche courses are particularly noteworthy since the Math Division and college as a whole has experienced declining enrollments.

Precalculus and Trigonometry (Math 242, Math 229, Math 231)



While Math 242, 229, and 231 have experienced decreasing enrollments, we believe this is consistent with the decline in enrollments for the whole college, likely due to the pandemic combined with the changing demographics in the county.
For Math 242, we have put significant effort into increasing student success by counseling students into College Algebra and/or Business Calculus if these courses satisfy their degrees/transfer requirements. This has improved those students' success at the expense of 242 enrollments.

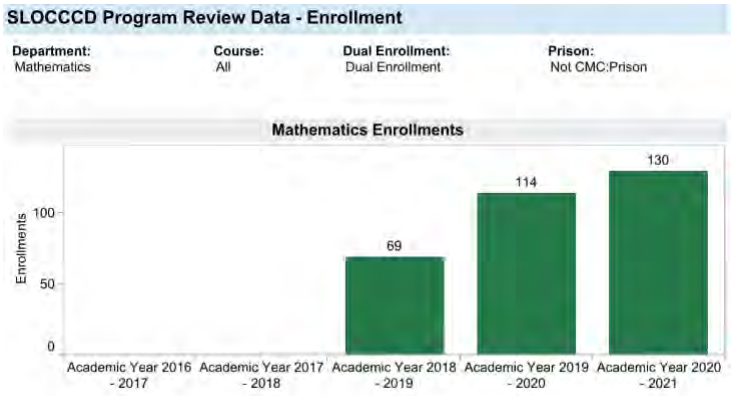
Calculus Sequence and Differential Equations with Linear Algebra (Math 265A, Math 265B, Math 283, Math 287)



The peak in 2018- 2019 in calculus enrollments was when MMAP was first implemented with no guidance about placement related to a student's major and so numerous students were taking calculus when it was not required for their major. Our guided self-placement tool was implemented Fall 2019 with AB705, and it made an impact in ensuring students were taking math courses that fit their intended educational goals. In addition, faculty have worked hard to

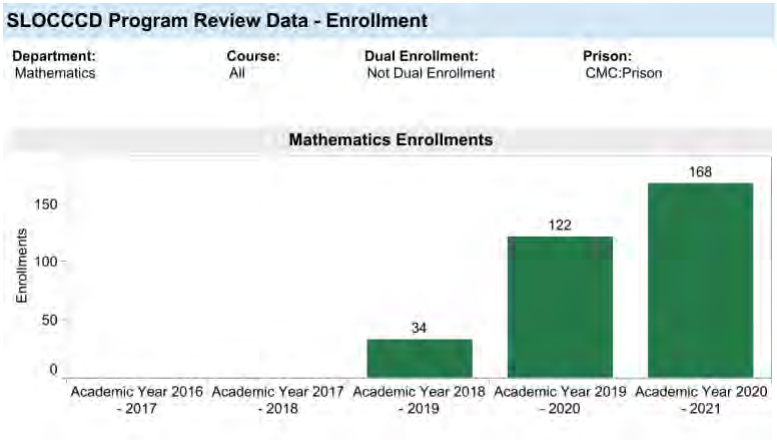
make sure students are in the correct course during the first week of instruction. As a result, faculty have observed an improvement in students taking an appropriate course for their major. In Fall 2020 there were additional high school students taking calculus at Cuesta due to circumstances in a couple local K-12 without calculus teachers during the pandemic.

Dual Enrollment



Calculus I and Precalculus at Atascadero High School began in the dual enrollment program in 2018-2019 followed by the addition of Statistics and Precalculus courses at Nipomo High School in 2019-2020. In 2020-2021 Paso Robles high school added Calculus II. It is challenging to grow the dual enrollment program in Math as it is difficult to find high school teachers with the required minimum qualifications.

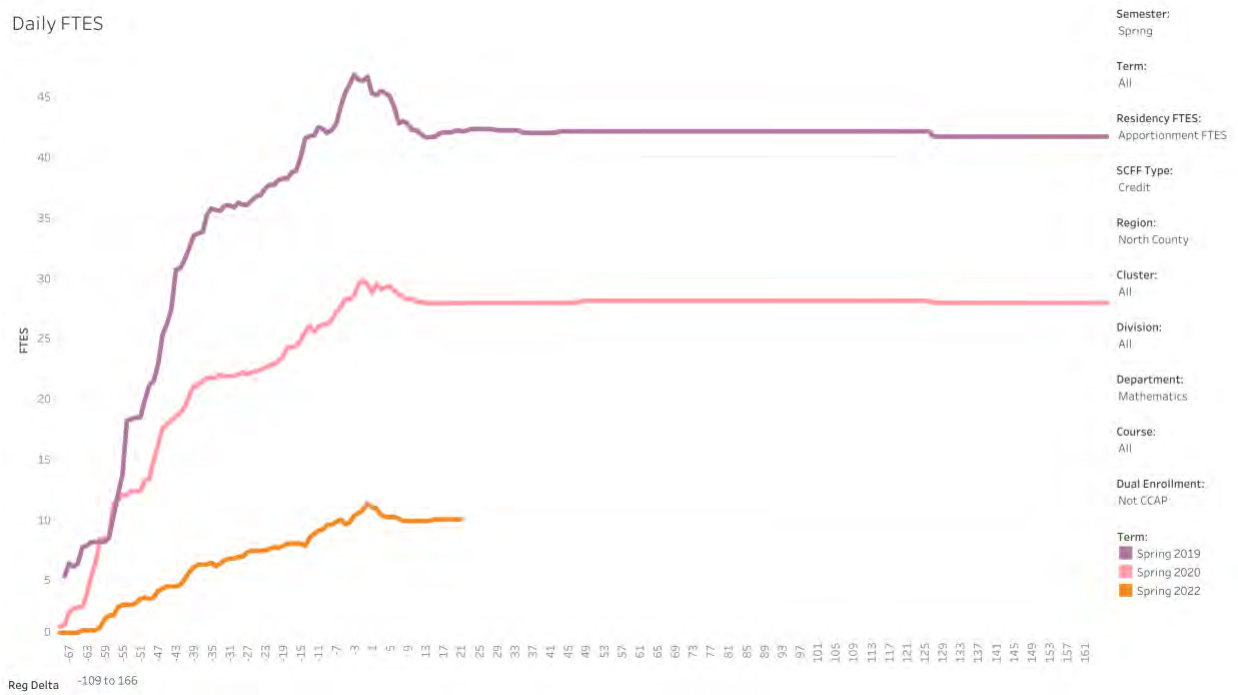
CMC



A single Math 230 course was offered at CMC Spring 2019. Fall 19 and Spring 20 each had a Math 230 and a Math 247 offered. Fall 2020 has increased to three courses. There was one Math 230 and one Math 247 in Fall 19 and in Spring 20. There were three courses offered in Fall 2020. The traditionally high success rates at CMC have been maintained during the pandemic, despite the

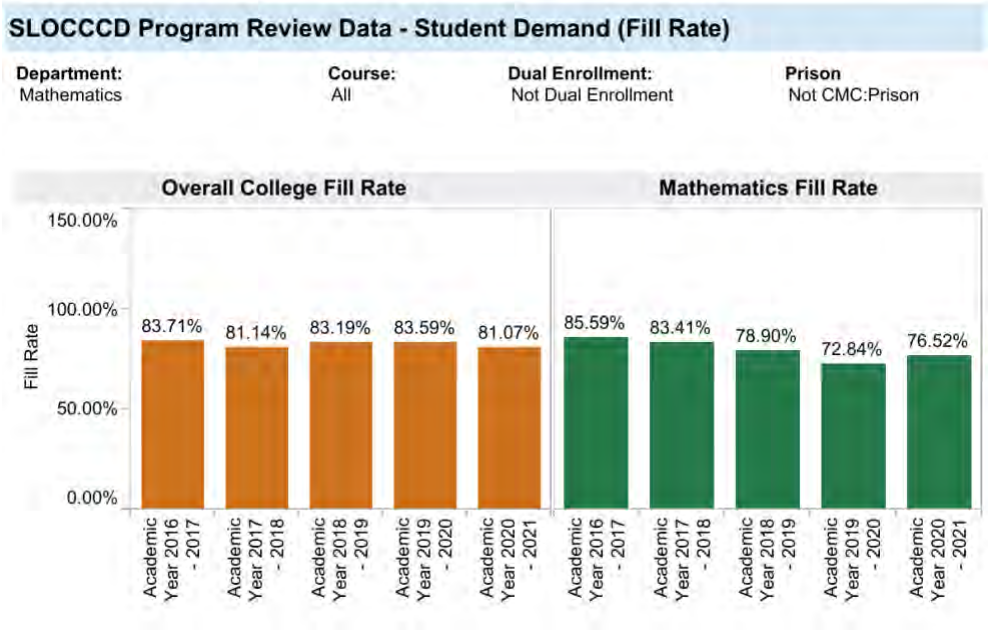
need to offer courses by correspondence only. These results are even more impressive, given that the students didn't have any official tutorial resources, and because of quarantines, often learned the material completely independently.

North County Campus Spring Semester Daily FTEs



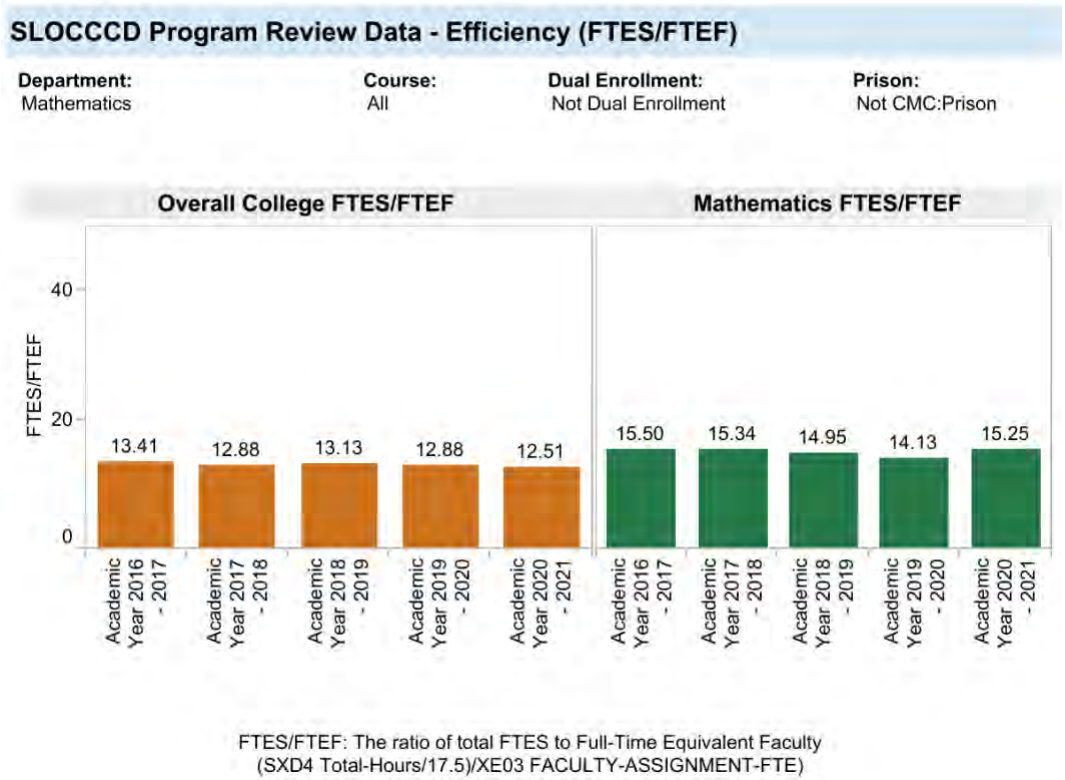
The bulk of the classes offered on the NC campus have historically been pre-transfer level classes. With MMAP and AB705 those classes are no longer being offered, leaving us with very few classes on the schedule. Then with the pandemic, there was a large increase in Distance Ed classes offered by the division, and many students are now choosing to take their classes remotely. There has been frequent discussion about what to offer at NC and how to attract more students both in Mathematics and for other disciplines since there is an amazing infrastructure in place to support at NC student success.

STUDENT DEMAND (FILL RATE)



It should be noted that math classes generally have a cap of 40, which is much higher than many classes across the campus. Hence, this data is not as relevant as the FTES/FTEF. However, with continued efforts to streamline the schedule to meet student demand post AB705 and with the pandemic, the Math program had efficiency closer to the college as a whole in 2020-2021. Another challenge in scheduling in Mathematics is that students are being guided to take math fall semester with the implementation of AB705, and many students only need a single course, which results in a huge disparity in demand for spring.

EFFICIENCY (FTES/FTEF)



Math FTES/FTEF continues to be much stronger than the college as a whole. This is remarkable over the last few school years considering the challenge in creating a schedule of offerings to accurately meet the rapid shifts in demand due to MMAP and AB705 and the pandemic. It is likely this number will increase over time, once the patterns of math enrollments level out.

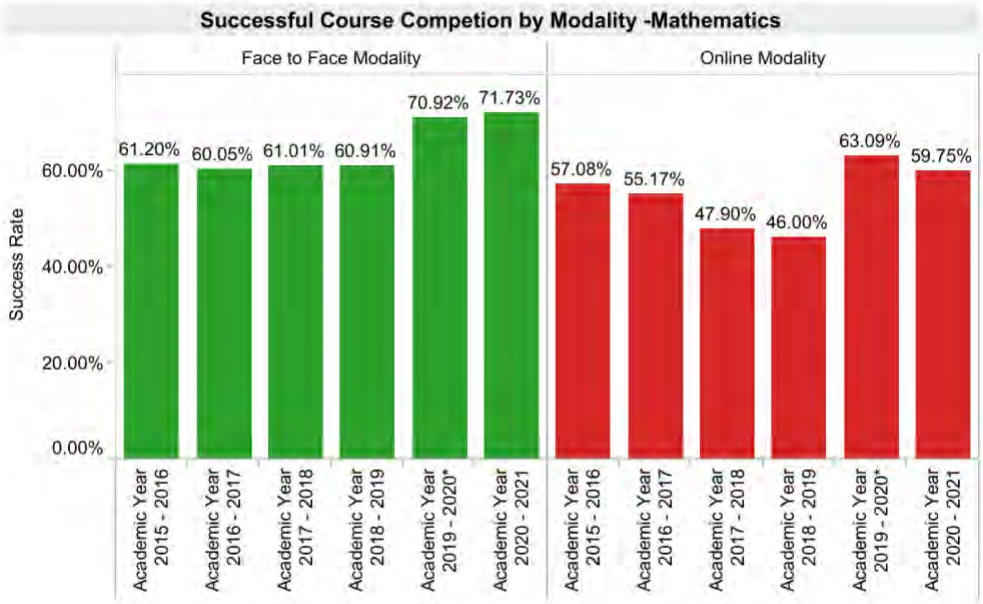
STUDENT SUCCESS BY MODALITY

SLOCCCD Program Review Data: Successful Course Completion

Select Department: Mathematics

Course: All

Legend: Face to Face Modality, Online Modality



Successful Course Competion by Modality Table - Mathematics

		Academic Year 2015 - 2016	Academic Year 2016 - 2017	Academic Year 2017 - 2018	Academic Year 2018 - 2019	Academic Year 2019 - 2020*	Academic Year 2020 - 2021
Face to Face Modality	Department Success Rate	61.20%	60.05%	61.01%	60.91%	70.92%	71.73%
	Total Department Enrollm..	6,378	6,023	5,372	5,096	4,701	476
Online Modality	Department Success Rate	57.08%	55.17%	47.90%	46.00%	63.09%	59.75%
	Total Department Enrollm..	219	261	357	401	606	4,352

Prior to 2019-2020, we offered Math 123, 127, 232, and 247 online (5 total sections per semester). In 2019-2020 we added Math 230, 242, and 255. In Spring 2020, the COVID-19 pandemic forced all courses online (although they were still coded as face-to-face, if that's how the class had started) and the college offered EW grades to any students who wanted them, and converted all F grades to EW for that semester. These all likely contributed to the increased success rates in 2019-20 across both modalities. During Spring, Summer, and Fall 2020, all faculty developed and improved online courses. Most math faculty chose to become fully DE certified, and all math faculty worked closely with each other, and veteran DE faculty to provide

the highest level education possible for their students under difficult circumstances. In 2020-21, after all faculty had a chance to learn about methods and tools for online learning, the success rate for the online modality was 59.75%, which is right on par with the face-to-face success rates in the math division for the years 2015-2019 (between 60.05% and 61.20%). We feel that this demonstrates the successful pivot of the Math Division during the pandemic from face-to-face to online modality. When comparing to the rest of the college, we see that college-wide online modality success rates for 2020-21 remain about 3-4 percentage points lower than the face-to-face modality from 2015-2019. [When looking at the data, the face-to-face modality for 2020-21 should be ignored. All math courses were of the online modality during that academic year, and those 476 students are of unknown origin. About 298 of them are likely Dual Enrollment and CMC students.]

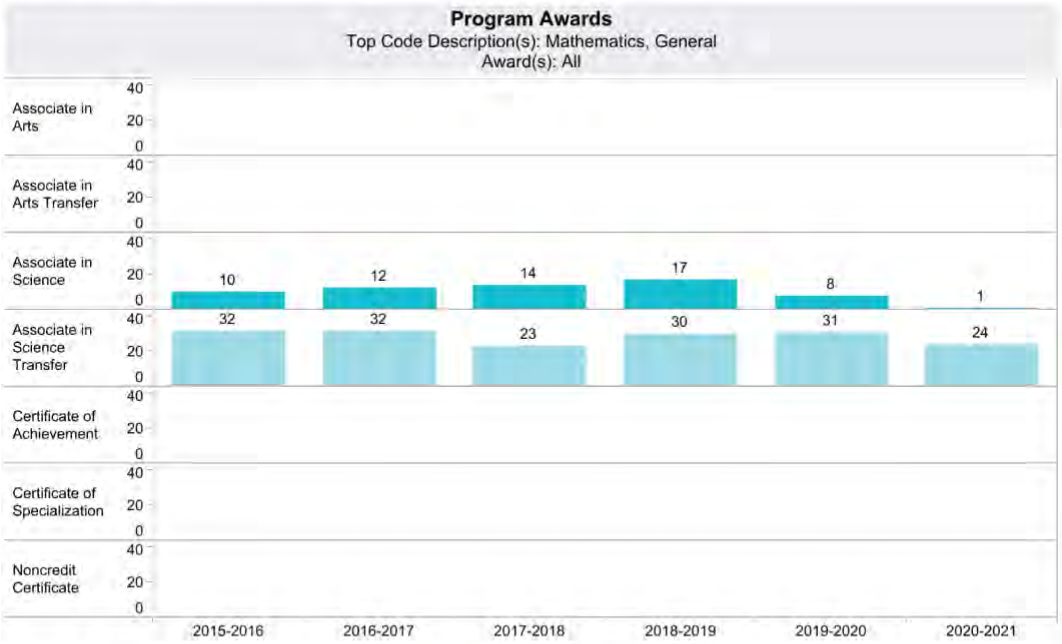
We anticipate a continued increase in offerings as a result of the experience all faculty have gained through training and the move online for 2020-2021 due to the pandemic. In addition, since students throughout the education system have experience with online learning, many are now more comfortable learning mathematics in an online environment and appreciate the flexibilty it allows them to work around other job or family obligations, so the demand will likely go up. Now that most faculty have online training and experience there has been much more regular robust dialogue about online teaching pedagogy and technology that will likely enhance everyone's teaching and assist in trouble shooting challenges specific to online math courses.

DEGREES AND CERTIFICATES AWARDED

SLOCCCD Program Review Data: Degrees and Certificates Awarded

Program: Mathematics, General

Award Type: All



Program Awards Table

Award Type	Award	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Associate in Science	Mathematics (AS)	10	12	14	17	8	1
	Total	10	12	14	17	8	1
Associate in Science Transfer	Mathematics (AST)	32	32	23	30	31	24
	Total	32	32	23	30	31	24
Grand Total		42	44	37	47	39	25

Program Awards: The number of degress and certificates awarded by program type

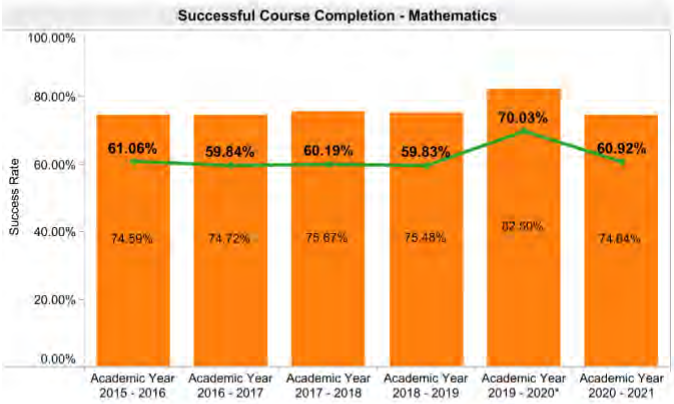
The Mathematics Division's main role on campus is supporting all of the degrees and certificates offered at the College. We continue to have a small group of students who earn an associates degree in mathematics. At the recommendation of Counseling and Curriculum, we discontinued the A.S. in Mathematics in order to steer students toward the A.S.T. There was significant overlap and the A.S.T is a better fit for students who will be applying for transfer. In seeing the decline in the total number of degrees awarded, we may need to revisit whether a local A.S. in Mathematics is worth reinstating for the college.

SUCCESS RATES

Annual Success Rates, including Spring 2020 Data (the semester with significant EW's)

SLOCCCD Program Review Data: Successful Course Completion

Select Department: Mathematics
TERM All
COURSE All
Measure Names
Department Success Rate
Overall College Success Rate



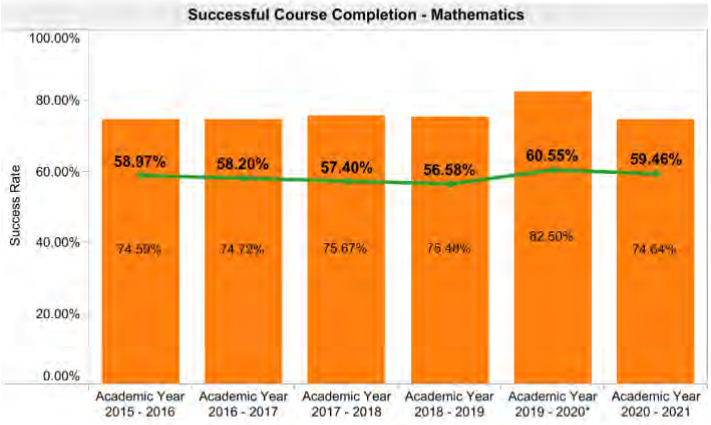
Mathematics Success Rate Table

	Academic Year 2015 - 2016	Academic Year 2016 - 2017	Academic Year 2017 - 2018	Academic Year 2018 - 2019	Academic Year 2019 - 2020*	Academic Year 2020 - 2021
Department Success..	61.06%	59.84%	60.19%	59.83%	70.03%	60.92%
Total Enrollments	6,597	6,284	5,729	5,497	5,307	4,828

Success Rates Fall Semesters

SLOCCCD Program Review Data: Successful Course Completion

Select Department: Mathematics
TERM Multiple values
COURSE All
Measure Names
Department Success Rate
Overall College Success Rate



Mathematics Success Rate Table

	Academic Year 2015 - 2016	Academic Year 2016 - 2017	Academic Year 2017 - 2018	Academic Year 2018 - 2019	Academic Year 2019 - 2020*	Academic Year 2020 - 2021
Department Success..	61.06%	59.84%	60.19%	59.83%	70.03%	60.92%
Total Enrollments	6,597	6,284	5,729	5,497	5,307	4,828

The success rates for Mathematics had remained relatively steady from 2015-2016 through 2018-2019. From Fall 2015 through Spring 2018, students were placed in their initial math class via our old Multiple Measures assessment, which took into account assessment test results, courses completed in high school, grades in those courses, and time elapsed since last math class. Using this placement system, most students were placed at the intermediate algebra level. For Fall 2018 the new MMAP matrix developed by the RP Group was used for placement and Spring 2019 transitioned to AB705 placement, allowing open access to all first-tier transfer level math courses. It is impressive that the first year MMAP and then AB705 were implemented, 2018-2019, the overall success rates remained similar to previous years, given that the bulk of students in 2018-2019 were starting directly in transfer level courses. This reinforces the RP group's research on placement methods and is also a testament to the high level of commitment of the Math faculty to collaborate and work on ways to best support our students.

When looking at 2019 -2020, it is not appropriate to include Spring 2020 data since the school awarded large numbers of EW's as a response to the abrupt shift to online teaching, due to the beginning of the pandemic in Spring 2020. Hence, we included the graphic with data focusing on Fall semesters. The overall success rate in Fall 2019 and Fall 2020 with the increase in underprepared students in our courses, both in foundational math skills and college study skills, is a testament to the extensive work done by Math faculty and the Success Center staff to support our students with the sweeping changes in placement with AB705. In addition, the increase of focus in the last two years on professional development related to equity minded teaching has likely contributed to student success. It is also likely students were more motivated to succeed in a single math course that counted toward their educational goal than trying to complete multiple pre-requisite algebra courses that overlapped in content from high school.

We will continue to assess and create plans for improvement, in collaboration with the Success Center, to continue to improve student success in light of AB705. We hope the college will continue to prioritize support for the amazing work of the tutors and staff at the Success Center, including both in person and virtual tutoring.

Success Rates by Course

Success Rate	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
ALL Courses	59.84%	60.19%	59.83%	70.03%	60.92%
Math 127 (126A/B)	53.72%	55.86%	52.74%	54.59%	56.53%
Math 128	64.97%	65.69%	55.33%	63.97%	60.43%
Math 147S				80.28%	57.29%
Math 220			80.56%	88.00%	82.89%
Math 229/231	66.24%	62.75%	60.89%	72.47%	63.44%
Math 230	83.97%	89.94%	76.52%	79.46%	70.36%
Math 232	65.19%	55.66%	47.58%	64.00%	47.47%
Math 242	52.94%	53.25%	53.75%	60.00%	53.32%
Math 247(236)	63.06%	64.65%	64.63%	74.22%	61.97%
Math 255	71.53%	64.52%	73.19%	69.92%	65.61%
Math 265A	57.95%	58.80%	61.39%	68.84%	66.19%
Math 265B	67.79%	66.83%	60.87%	76.70%	51.49%
Math 283	64.42%	63.57%	65.65%	70.41%	50.79%
Math 287	76.64%	67.57%	67.50%	77.67%	82.30%

Note: There was an unusual spike in 2019-2020 data due to the EW's in Spring 2020

Success Rates for First-Tier Non-Stem Transfer Level Courses (Math 220, 230, 232, 247)

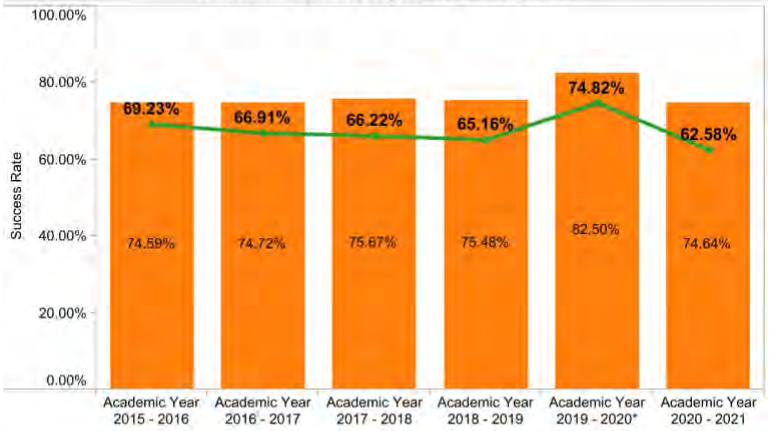
SLOCCCD Program Review Data: Successful Course Completion

Select Department: Mathematics

TERM All

COURSE Multiple values

Measure Names
- Department Success Rate
- Overall College Success Rate



Mathematics Success Rate Table

	Academic Year 2015 - 2016	Academic Year 2016 - 2017	Academic Year 2017 - 2018	Academic Year 2018 - 2019	Academic Year 2019 - 2020*	Academic Year 2020 - 2021
Department Success..	69.23%	66.91%	66.22%	65.16%	74.82%	62.58%
Total Enrollments	832	1,112	1,504	1,922	2,652	2,308

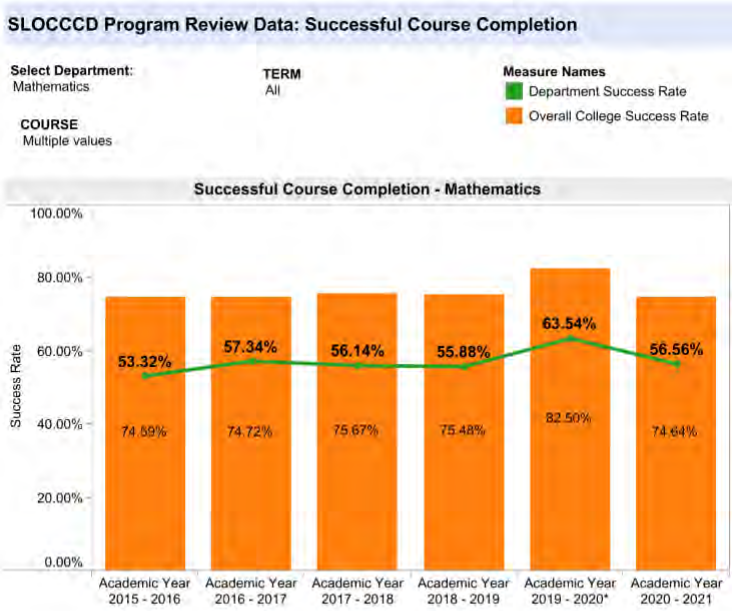
With the implementation of AB705 in the Spring of 2019 we have had a significant increase in the number of students enrolling directly into first-tier, non-stem transfer level courses with an increase in total enrollment from 832 students in 2015-2016 to a peak of 2652 students in 2019-2020. It has naturally been a concern that some of these students may not have the foundational algebra skills needed in these transfer level courses. The Math Division has worked hard to mitigate the challenges our less prepared students face when enrolling directly into our first-tier, non-stem transfer level courses. These efforts have included instructors embedding just-in-time reviews of algebra topics into their Canvas shells, working directly with the Student Success Center to help students with their foundational skills, as well as additional class time devoted to review topics. Additionally, the Math Division developed a one-unit support course, Math 147S, to support our statistics students in successfully completing their statistics course. We feel these efforts have mitigated a decline in success rates, particularly in Math 247.

With that said, however, excluding data from 2019-2020 there was a decline in success rates in these courses from 66.2% in 2017-2018 to 62.6% in 2020-2021. When referencing the course specific data in the table, Math 230 and Math 232 have shown a decline in the success rate (ignoring 2019-2020) since the implementation of MMAP and AB705. Traditionally these course are taken by students with weaker math skills. With AB 705, more students are enrolling in

these courses directly without having first taken a prequisite class like Math 127 to sharpen their skills. As a result, we have increased the throughput for the number of students being successful (the goal of AB 705), but as a consequence the success rate has dropped because of the greater percentage of underprepared students in these classes. In an effort to improve success in Math 232 and better prepare many of those students for business calculus, we went through the process to increase the course to 4 units to better incorporate just in time skills and content for preparation for Math 255. In addition, we are looking for more support options with collaborations with the Success Center and embedded tutoring in both Math 230 and Math 232.

It is difficult to make any definitive conclusion based on this data, given all the contributing factors such as AB705 and the dramatic increase of online courses due to the pandemic. However, as a division, we will continue to support our students in achieving their educational goals, particularly our students who need additional support with foundational algebra skills.

Success Rates for First-Tier Transfer Level Stem Courses (Math 229, 231, 242)



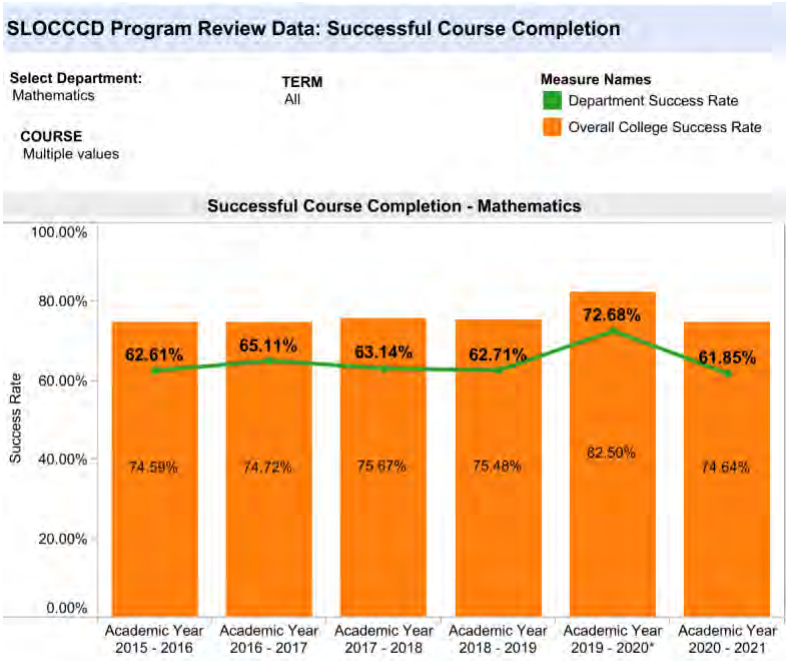
Mathematics Success Rate Table

	Academic Year 2015 - 2016	Academic Year 2016 - 2017	Academic Year 2017 - 2018	Academic Year 2018 - 2019	Academic Year 2019 - 2020*	Academic Year 2020 - 2021
Department Success..	53.32%	57.34%	56.14%	55.88%	63.54%	56.56%
Total Enrollments	920	941	839	834	705	719

Excluding the academic year 2019-2020, student success rates in first-tier transfer level STEM math courses have remained relatively steady. Although success rates have remained steady,

they remain lower than anyone in the division would like, particularly compared to overall college success rates. As a division, we recognize that these classes are difficult for our students and that success rates for these courses are low throughout the community college system. However, just like we teach our students to have a growth mindset when it comes to learning mathematics, we must maintain a similar growth mindset, and believe that we can work together to improve success rates in our first-tier transfer level STEM courses.

Success Rates for Math 265A, 265B, 283, 287



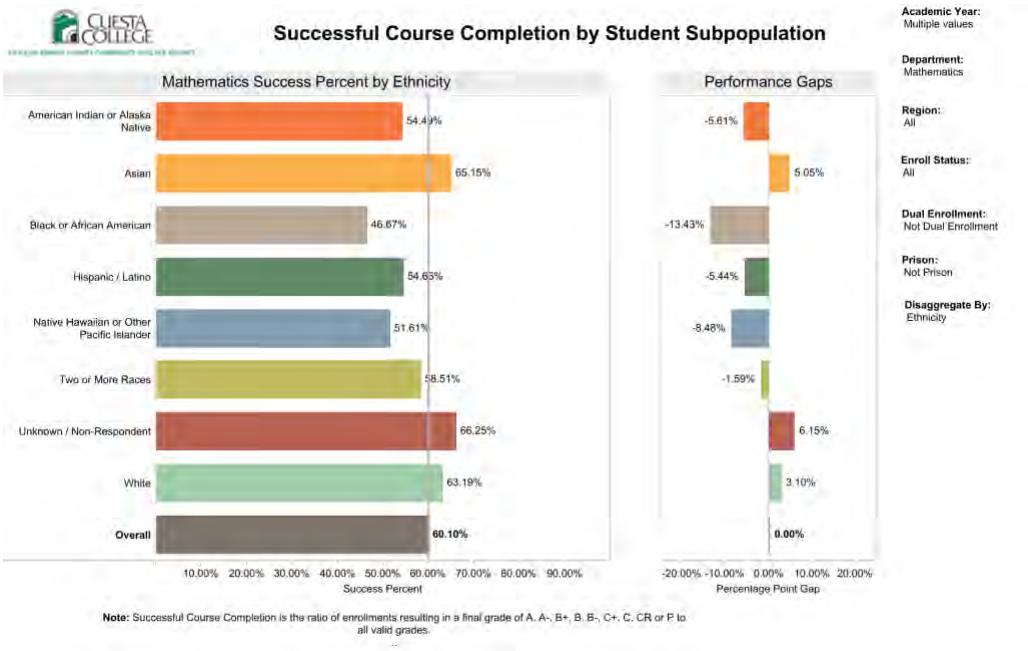
Mathematics Success Rate Table

	Academic Year 2015 - 2016	Academic Year 2016 - 2017	Academic Year 2017 - 2018	Academic Year 2018 - 2019	Academic Year 2019 - 2020*	Academic Year 2020 - 2021
Department Success..	62.61%	65.11%	63.14%	62.71%	72.68%	61.85%
Total Enrollments	821	791	758	886	790	838

Success rates in our calculus courses have held steady, although there was a sharp increase from 62.7% in 2018-19 to 72.7% in 2019-20. This was followed by an even sharper decline the following year to 61.9%. It's possible that due to the college going completely online in spring of 2020, numerous outside resources (intended or otherwise) were suddenly available to students since they were working from home. Returning to campus for face-to-face classes naturally would not have the same resources for students perhaps affecting their performance the next year (specifically in fall 2021). Calculus instructors are currently trying to reverse this decline by providing additional resources to students who need to review previous topics, utilizing their Canvas course shells and external resources such as MyOpenMath.

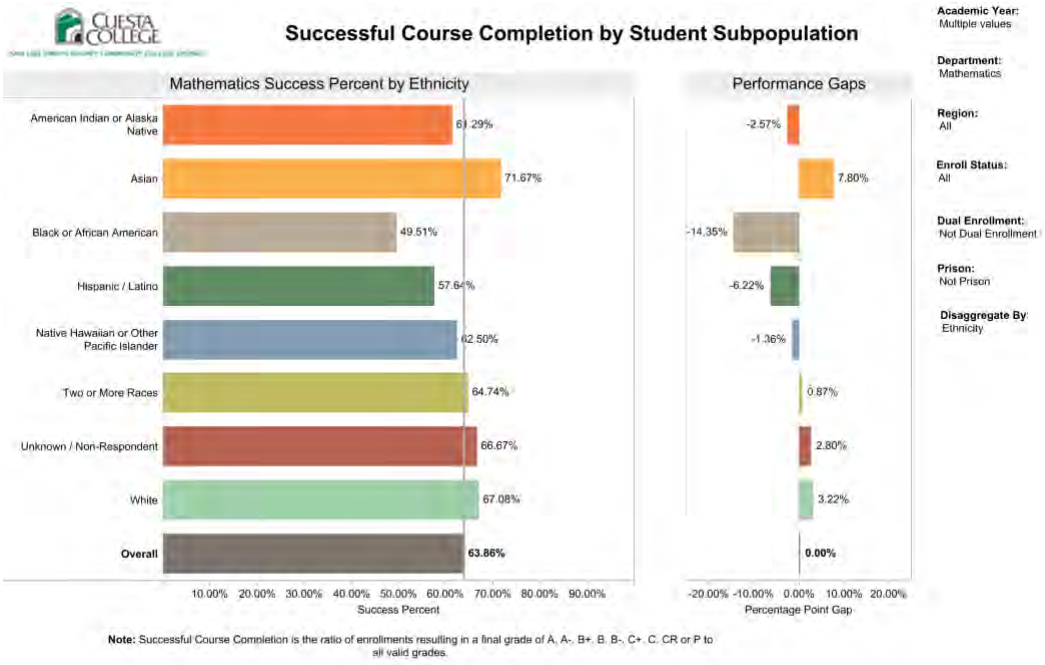
Disaggregated Student Success by Ethnicity Before AB705

2015-2016, 2017-2018, 2018 – 2019



Disaggregated Student Success by Ethnicity After AB705

2019-2020 , 2020-2021



The success rates in math courses have shown improvements post AB705 when disaggregated by ethnicities. This is remarkable because many more students are starting in transfer level math than pre-AB705. Although this data includes the EWs from Spring 2020, we are optimistic that all of the extensive work we have done to implement AB705 and our recent focus on equity minded teaching have made a positive impact on marginalized groups. We know we have a lot more work ahead of us as we can see that the equity gaps in most the race/ethnicity groups have persisted after AB705. In particular, the equity gap for African American/Black and Hispanic/Latinx has had a small increase after AB705.

The department is committed to the ongoing process of closing the equity gaps and will continue to attend workshops, conferences, and institutes. We will also continue our practice of dialogue and sharing of the best equitable practices that we can implement in our classrooms during our division meetings.

Since the last CPPR, faculty have participated in numerous professional development activities geared toward equity in teaching. In Summer 2021, five math faculty members completed the JEDI (Justice, Equity, Diversity, and Inclusion) Academy to better serve our students and share with the Math division as well. The implementation of JEDI in our courses is an on-going process that looks at how we can improve our courses through our curriculum, policies, language, resources, and variety of student work.

Many of our instructors have participated in a variety of other equity focused institutes and workshops including: The Equity Minded Teaching Institute 2018 by Center of Urban Education with a year-long follow up of pedagogical evaluation and change, The Leadership Institute for Equity in Teaching Mathematics 2021 by the Center of Urban Education, The Equity Summit 2019, The Equity Academy in April 2019, The Hispanic Association of Colleges and Universities annual conference, breakout sessions at Math conferences focused on equity and social justice such as Dr. Rochelle Gutierrez' presentation on “Rehumanizing Mathematics: A Vision for the Future”, presentations brought on campus such as Ali Michael. During 2019-2020 school year, our division had a book discussion on Grading for Equity, by Joe Feldman. During 2020-2021 school year, several math faculty attended one of the sessions offered by CA Community College Equity Leadership Alliance hosted by USC Race and Equity Center and then attended the follow up Cuesta round table discussion with managers, staff and faculty.

After faculty attend and learn from these opportunities, we make time for sharing within our division meetings. During 2021-2022 school year, we have made “teaching with equity” a regular agenda item that includes a mini presentation and dialogue sharing practices related to six elements for equity minded course design. We plan to continue attending teaching with equity focused professional development opportunities and having follow up dialogue in our Math Division meetings so we can continue to work toward closing equity gaps.

IV. CURRICULUM REVIEW

The following tables are from the template provided by the Curriculum Committee for the CPPR.

1. Courses

Course (Prefix / Number)	Currently active	New course since last CPPR	Major modification since last CPPR	Minor modification since last CPPR	Deactivated since last CPPR
Math 003	yes	no	no	no	no
Math 007	yes	no	no	no	no
Math 021	yes	no	yes: Spring 2018	no	no
Math 122	yes	no	yes: Spring 2018	no	no
Math 123	yes	no	no	no	no
Math 126A	yes	no	no	no	no
Math 126B	yes	no	no	no	no
Math 127	yes	no	no	no	no
Math 128	yes	no	no	no	no
Math 147S	yes	yes: Fall 2020	yes: Fall 2021	no	no
Math 193	yes	no	no	no	no
Math 220	yes	no	yes: Spring 2020	no	no
Math 229	yes	no	yes: Fall 2021	no	no
Math 230	yes	no	yes: Fall 2021	no	no

Course (Prefix / Number)	Currently active	New course since last CPPR	Major modification since last CPPR	Minor modification since last CPPR	Deactivated since last CPPR
Math 231	yes	no	yes: Fall 2021	no	no
Math 232	yes	no	yes: Fall 2022	no	no
Math 236	yes	no	no	no	no
Math 242	yes	no	yes: Fall 2021	no	no
Math 247	yes	no	no	no	no
Math 255	yes	no	yes: Fall 2021	no	no
Math 265A	yes	no	yes: Fall 2021	no	no
Math 265B	yes	no	no	no	no
Math 283	yes	no	no	no	no
Math 287	yes	no	no	no	no
Math 290	yes	yes: Fall 2021	yes: Fall 2022	no	no
Math 291	yes	yes: Fall 2022	no	no	no
Math 295	no	yes: Spring 2022	no	no	no
Math 703	yes	yes: Fall 2018	no	no	no
Math 707	yes	yes: Fall 2018	no	no	no

2. Course Review

Course Number	Math 003	Math 007	Math 021	Math 122	Math 123
1. Effective term listed on COR	Spring 2018	Spring 2018	Spring 2018	Spring 2018	Fall 2019
2. Catalog / schedule description is appropriate	Yes	yes	Yes	Yes	yes
3. Pre-/ co-requisites / advisories (if applicable) are appropriate	yes	**no[2]**	**no[2]**	yes	**no[2]**
4. "Approved as Distance Education" is accurate (and new addendum complete)	yes	yes	yes	yes	yes
5. Grading Method is accurate	yes	yes	yes	yes	yes
6. Repeatability is zero	yes (blank)	yes	yes (blank)	yes	yes
7. Class Size is accurate	yes	yes	yes	yes	yes
8. Objectives are aligned with methods of evaluation	yes	yes	yes	yes	yes
9. Topics / scope are aligned with objectives	yes	yes	yes	yes	yes
10. Assignments are aligned with objectives	yes	yes	yes	yes	yes
11. Methods of evaluation are appropriate	yes	yes	yes	yes	yes
12. Texts, readings, materials are dated within last 5 years	yes (20)	yes (18)	yes (17)	yes (17)	yes (17)
13. CSU / IGETC transfer & AA GE information (if applicable) is correct	yes	yes	yes	yes	yes
14. Degree / Certificate information (if applicable) is correct	yes	yes	yes	yes	yes
15. Course Student Learning Outcomes are accurate	**no[4] (too many)**	yes	yes	yes	yes
16. Library materials are adequate and current *	yes	yes	yes	yes	yes

Course Number	Math 126A	Math 126B	Math 127	Math 128	Math 147S
1. Effective term listed on COR	Spring 2015	Spring 2015	Fall 2020	Fall 2019	Fall 2021
2. Catalog / schedule description is appropriate	Yes	Yes	yes	yes (possible update to who intended for)	yes
3. Pre-/ co-requisites / advisories (if applicable) are appropriate	**no[2]**	yes	**no[2] (adjust with AB705)**	**no[2] (adjust with AB705)**	yes
4. "Approved as Distance Education" is accurate (and new addendum complete)	yes	yes	yes	yes	yes
5. Grading Method is accurate	yes	yes	yes	yes	yes
6. Repeatability is zero	yes	yes	yes (blank)	yes	yes (blank)
7. Class Size is accurate	yes	yes	yes	yes	yes
8. Objectives are aligned with methods of evaluation	yes	yes	yes	yes	yes
9. Topics / scope are aligned with objectives	yes	yes	yes	yes	yes
10. Assignments are aligned with objectives	yes	yes	yes	yes	yes
11. Methods of evaluation are appropriate	yes	yes	yes	yes	yes
12. Texts, readings, materials are dated within last 5 years	**no[3]** (09)	**no[3]** (09)	yes (17)	**no[3]** (16, 15)	yes (21)
13. CSU / IGETC transfer & AA GE information (if applicable) is correct	yes	yes	yes	yes	yes
14. Degree / Certificate information (if applicable) is correct	yes	yes	yes	yes	yes
15. Course Student Learning Outcomes are accurate	yes	yes	yes	yes	yes
16. Library materials are adequate and current *	yes	yes	yes	yes	yes

Course Number	Math 220	Math 229	Math 230	Math 231
1. Effective term listed on COR	Spring 2020	Fall 2021	Fall 2021	Fall 2021
2. Catalog / schedule description is appropriate	yes	yes	yes	yes
3. Pre-/ co-requisites / advisories (if applicable) are appropriate	yes	yes	yes	yes
4. "Approved as Distance Education" is accurate (and new addendum complete)	yes	yes	yes	yes
5. Grading Method is accurate	yes	yes	yes	yes
6. Repeatability is zero	yes	yes (blank)	yes (blank)	yes (blank)
7. Class Size is accurate	yes	yes	yes	yes
8. Objectives are aligned with methods of evaluation	yes	yes	yes	yes
9. Topics / scope are aligned with objectives	yes	yes	yes	yes
10. Assignments are aligned with objectives	yes	yes	yes	yes
11. Methods of evaluation are appropriate	yes	yes	yes	yes
12. Texts, readings, materials are dated within last 5 years	**no[3]** (16)	yes (17)	yes (21)	yes (17)
13. CSU / IGETC transfer & AA GE information (if applicable) is correct	yes	yes	yes	yes
14. Degree / Certificate information (if applicable) is correct	yes	yes	yes	yes
15. Course Student Learning Outcomes are accurate	yes	yes	yes	yes
16. Library materials are adequate and current *	yes	yes	yes	yes

Course Number	Math 232	Math 236	Math 242	Math 247	Math 255
1. Effective term listed on COR	Fall 2019	Fall 2016	Fall 2021	Fall 2019	Fall 2021
2. Catalog / schedule description is appropriate	yes	yes	yes	yes	yes
3. Pre-/ co-requisites / advisories (if applicable) are appropriate	**no[2] (approp placement)**	**no[2] (approp placement)??**	yes	**no[2] (approp placement)**	yes
4. "Approved as Distance Education" is accurate (and new addendum complete)	yes	yes	yes	yes	yes
5. Grading Method is accurate	yes	yes	yes	yes	yes

6. Repeatability is zero	yes (blank)	yes	yes (blank)	yes	yes (blank)
7. Class Size is accurate	yes	yes	yes	yes	yes
8. Objectives are aligned with methods of evaluation	yes	yes	yes	yes	yes
9. Topics / scope are aligned with objectives	yes	yes	yes	yes	yes
10. Assignments are aligned with objectives	yes	yes	yes	yes	yes
11. Methods of evaluation are appropriate	yes	yes	yes	yes	yes
12. Texts, readings, materials are dated within last 5 years	yes (17)	**no**[3] (12)	yes (20)	**no**[3] (16)	yes (17)
13. CSU / IGETC transfer & AA GE information (if applicable) is correct	yes	yes	yes	yes	yes
14. Degree / Certificate information (if applicable) is correct	yes	yes	yes	yes	yes
15. Course Student Learning Outcomes are accurate	yes	yes	yes	yes	yes
16. Library materials are adequate and current *	yes	yes	yes	yes	yes

Course Number	**Math 265A**	**Math 265B**	**Math 283**	**Math 287**	**Math 290**
1. Effective term listed on COR	Fall 2021	Fall 2019	Spring 2016	Fall 2016	Fall 2021
2. Catalog / schedule description is appropriate	yes	yes	yes	yes	yes
3. Pre-/ co-requisites / advisories (if applicable) are appropriate	yes	yes	yes	yes	yes
4. "Approved as Distance Education" is accurate (and new addendum complete)	yes	yes	yes	yes	yes
5. Grading Method is accurate	yes	yes	yes	yes	yes (blank)
6. Repeatability is zero	yes	yes	yes	yes	yes
7. Class Size is accurate	yes	yes	yes	yes	yes
8. Objectives are aligned with methods of evaluation	yes	yes	yes	yes	yes
9. Topics / scope are aligned with objectives	yes	yes	yes	yes	yes
10. Assignments are aligned with objectives	yes	yes	yes	yes	yes
11. Methods of evaluation are appropriate	yes	yes	yes	yes	yes

12. Texts, readings, materials are dated within last 5 years	yes (19)	yes (19)	yes (19)	**no[3]** (16)	**no[3]** (13)
13. CSU / IGETC transfer & AA GE information (if applicable) is correct	yes	yes	yes	yes	yes
14. Degree / Certificate information (if applicable) is correct	yes	yes	yes	yes	yes
15. Course Student Learning Outcomes are accurate	yes	yes	yes	yes	yes
16. Library materials are adequate and current *	yes	yes	yes	yes	yes

Course Number	Math 291	Math 295	Math 703	Math 707
1. Effective term listed on COR	Fall 2022	Spring 2022	Fall 2018	Fall 2018
2. Catalog / schedule description is appropriate (1)	yes	yes	yes	yes
3. Pre-/ co-requisites / advisories (if applicable) are appropriate (2)	yes	yes	yes	yes
4. "Approved as Distance Education" is accurate (and new addendum complete) (4)	yes	yes	yes	yes
5. Grading Method is accurate (1)	yes	yes	yes	yes
6. Repeatability is zero (4)	yes (blank)	yes (blank)	**no[4]**	**no[4]**
7. Class Size is accurate (2)	yes	yes	yes	yes
8. Objectives are aligned with methods of evaluation (1)	yes	yes	yes	yes
9. Topics / scope are aligned with objectives (1)	yes	yes	yes	yes
10. Assignments are aligned with objectives (1)	yes	yes	yes	yes
11. Methods of evaluation are appropriate (1)	yes	yes	yes	yes
12. Texts, readings, materials are dated within the last 5 years (3)	yes (18)	yes (17)	yes (20)	yes (18)
13. CSU / IGETC transfer & AA GE information (if applicable) is correct (4)	yes	yes	yes	yes
14. Degree / Certificate information (if applicable) is correct (4)	yes	yes	yes	yes

15. Course Student Learning Outcomes are accurate (4)	yes	yes	yes	yes
16. Library materials are adequate and current * (1)	yes	yes	yes	yes

[1] If no, a major modification is needed within the next 5 years (see five-year cycle calendar).
[2] If no, a major modification is needed in the current term. (For increase in class size, see your curriculum representative for details.)
[3] If no, a minor modification is needed in the current term.
[4] If no, contact the Curriculum Chair or Curriculum Specialist.

3. Programs

Program / Certificate Title	Currently active	New program since last CPPR	Program modification since last CPPR	Deactivated since last CPPR
Mathematics Associate in Science for Transfer	yes	no	no	no
Mathematics Associate in Science (Local)	no	no	yes: Spring 2017	yes: Fall 2019
Non-Credit Developmental Math Certificate	no	yes	Yes: Spring 2019	yes: Fall 2019

4. Program Review

Currently active Program / Certificate: Title	Required courses and electives, incl. course numbers, course titles, and course credits, are accurate	Program description is current	Program Learning Outcomes are accurate and include method of assessment
Mathematics Associate in Science for Transfer	yes	yes	yes

* If not, program modification is needed.
** If not, Program Learning Outcomes modification is needed.

5. Five-Year Cycle Calendar

- During the following five-year cycle all aspects of the course outline of record and program curriculum will be reviewed for currency, quality, and appropriate CurricUNET format.
- Indicate if a course needs a major or minor modification based on the current course review. Your curriculum representative will assist you.
- When submitting a major or minor modification, please enter or update the Student Learning Outcomes for each course.

Schedule for Reviewing Course Outline of Record

Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024	Spring 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027
Modify (as noted in tables above.) 247 232 127 128 123		~~Math 007~~ Math 290	~~Math 123~~ Math 127 Math 128	Math 230 Math 220	Math 232 Math 255	Math 147S Math 247	Math 229 Math 231 Math 242	Math 265A Math 265B	Math 283 Math 287	*Program Review*

Note: Courses that are not currently being offered due to recent AB705 implementation are not listed in the schedule of review shown above. The Math Division will be determining if any of those courses, such as Math 021, might be candidates for deactivation. The Math Division would like to be cautious about course deactivation until the second round of AB705 implementation has fallen into place and has been assessed for effectiveness in serving all students' needs. We would like to ensure we have appropriate courses available to offer our students in support of the mission of California Community Colleges.

V. PROGRAM OUTCOMES, ASSESSMENT AND IMPROVEMENTS

Math Student Learning Outcomes: 5-year Cycle

Assessment Cycle for Course and Program SLOs

Course coordinators will communicate the assessment of SLOs to course faculty and set up the assessment in eLumen with a 3 point scale. SLOs are assessed for each student by their instructor based on relevant course assessments/assignments to each SLO. Results of course SLOs are entered into eLumen by course faculty.

Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024	Spring 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027
~~Math 007~~ Math 290	~~Math 123~~ Math 127 Math 128	Math 230 Math 220	Math 232 Math 255	Math 147S Math 247	Math 229 Math 231 Math 242	Math 265A Math 265B	Math 283 Math 287	*Program Review*	*Program Review*

Analyze, Discuss, Revise, and Implement

The semester following the SLOs (at the Math Retreat), course coordinators and instructors will analyze the results from the SLOs. They will discuss the strengths and weaknesses of the student's skills and brainstorm possible teaching strategies and institutional assistance that can be utilized to better support student success. Summaries of course level discussions and any proposed actions will be shared with the division and saved on Teams.

Fall 2022	Spring 2023	Fall 2023	Spring 2024	Fall 2024	Spring 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027
	~~Math 007~~ Math 290	~~Math 123~~ Math 127 Math 128	Math 230 Math 220	Math 232 Math 255	Math 147S Math 247	Math 229 Math 231 Math 242	Math 265A Math 265B	Math 283 Math 287	*Program Review*

Please see the excel files that were submitted with the CPPR to see "PLO Summary Map by Course" and "ILO Summary Map by Course" from eLumen which show the Course-level SLOs mapped to the Program-level SLOs and the Course-level SLOs mapped to the Institutional Learning Outcomes.

Math Program Learning Outcomes

The following are automatically mapped to the relevant 265A, 265B, 283, 287 SLOs

1. Demonstrate the "Rule of 4" in solving a single problem.
2. Construct a proof.
3. Use calculus to solve problems in other disciplines such as physics, biology, statistics, chemistry, business math, and economics.

Highlights of Course SLOs Assessment and Analysis

The Division has moved to a 3-point scale in eLumen for assessing SLOs. Banks of sample problems for the courses assessed are made available to instructors which can be used in conjunction with an instructor's more holistic evaluation of each student's competence in each SLO. So far, we have found this holistic style of SLOs evaluation leads to more meaningful dialogue about course improvement.

The analysis of the SLOs and plans for course improvement continues to be discussed on the day of our Math Retreat prior to the start of our semester. The discussions have been expanded to use SLOs as the impetus to develop improvements for the given course and pre-requisite courses. In recent years, we have tied our conversations looking at the course SLOs assessment results with the other pieces of success data in light of AB705 in order to best serve our students.

Examples of SLOs Analysis Discussions and Actions

- Many course SLOs discussions since Fall 2019 have dovetailed with the AB705 needs providing resources and practice for "just in time skills" in all of our courses.
- Math 230, Math for Humanities, had significant increases in enrollment due to AB705 and yet had reasonable SLOs assessment results. We discussed specific topics that have been challenging for students both pre and post AB705 and detailed some strategies for teaching and assessing those topics. We also compared optional topics for the course of interest and value to humanities students as well as shared some faculty's incorporation of student presentations as an alternative to traditional written exams

- For Math 283, Multivariable Calculus, we expanded the discussion to include the preparation and focus needed in the pre-requisite calculus courses. All calculus instructors participated in the dialogue and determined the pre-requisite courses should increase focus on parametrization, add more numerical examples, ensure solid integration skills, etc. In addition to adjusting individual courses, a Student Prep workshop was offered to all calculus students to enhance weak prerequisite skills.
- Math 232, College Algebra, had poor results on the SLOs that timed with the implementation of AB705. We have a much larger number of highly underprepared students in the course, including some who have skipped Algebra II. After researching a variety of solutions from other campuses and comparing C-ID comparable courses, we went through Curriculum to increase the course to 4 units and adjusted the course outline to best reflect the new need for preparation for business calculus and the needed depth of coverage of just in time algebra skills.
- In Math 147S, Statistics Support, the SLOs results were strong due to the focus on pre-algebra skills. When looking at the parent course, 247, Intro to Statistics, it was evident students struggle more with the SLOs involving more critical thinking and hence the 147S course is being revised to reflect more critical thinking activities. We made the course hard linked to the parent 247 course so that it can be seen as a cohesive statistics course experience for the students.
- For Math 007, Prealgebra, it was determined that the incorporation of more visualizations help with the connection to the abstract for basic skills students and samples were shared.
- For Math 220, Math for Elementary School Teachers, there is currently some development of materials to better support the teaching of the Common Core approach.
- For Math 265A, Calculus I, instructors discussed the differences between fall and spring cohorts and shared ideas for improvement in the conceptual learning that included greater use of embedded tutors, more robust “just in time” review (especially for trigonometry), and more awareness of the topics students find difficult.
- For Math 242, PreCalculus, instructors discussed supporting students with just-in-time review. Canvas modules and videos were developed, and instructors added just-in-time review into their own courses.

Funding related to classroom technology, student Chromebooks, and support of the Success Center have all supported our aim to improve student outcomes on SLOs.

VI. PROGRAM DEVELOPMENT

Recent Additions and Improvements to the Program

Mathematics is now offered at California Men's Colony

- Spring 2019: Math 230, Math for Humanities
- Fall 2019 and Spring 2020: Math 247, Introduction to Statistics and Math 230, Math for Humanities
- Subsequent semesters: Math 247 and one or two sections of Math 230

Distance Education offerings Have Been Expanded

- Continued with previous DE courses: Math 123, Math 127, Math 232 and Math 247
- Math 247, Intro to Statistics, has expanded to multiple online offerings
- Math 230, Math for Humanities, first offered DE in Fall 2019 and has expanded in offerings
- Math 255, Business Calculus, first offered DE Fall 2019 and is now offered every semester
- Math 242, Precalculus, first offered DE Spring 2020 and is now offered every semester
- **"Post" Pandemic**: Increased offerings of DE sections of different courses such as Math 229, Math 231, Math 265A, Math 265B and significantly increased the number of DE sections of current offerings, particularly for statistics.

Dual Enrollment

- Atascadero High School began Fall 2018: Math 242 and Math 265A
- Nipomo High School began Fall 2019: Math 247 and Math 242
- Paso Robles High School began Fall 2021: Math 265B

New Courses

- Math 220, Mathematics for Elementary Schools Teachers was developed to support the new AD-T degree for Elementary Teacher Education. Math 220 was first offered Spring 2019 and due to demand is now being offered every semester.
- Math 147S, Statistics Support, was developed with the AB705 implementation Fall 2019 and is offered every semester, hard linked with the associated section of Math 247, Introduction to Statistics.
- Math 290 and 291, Introduction to Research, were developed and offered in Fall 2021.

AB705 Related Changes and Improvements

- Increased offerings of Math 247, Introduction to Statistics and Math 230, Math for Humanities and decreased pre-transfer offerings
- Implemented Comevo guided placement messaging for Fall 2019 incoming students which was integrated into the online orientation. Improvements were made Spring 2021. More changes will need to happen with the second round of AB705 implementation expectations from the Chancellor.
- Offered Math 147S, Statistics Support, for students with weaker math backgrounds and plan to hard link one way Fall 2021
- Built 147S Canvas Shell with resources that all instructors may access to support 247 students.
- Plans to develop a support course for Math 232
- Canvas Course shell for Math 232, College Algebra with learning modules of "just in time skills" that students can self-enroll in from any section of the course has been developed.
- More "just in time" review homework practice is being embedded in all courses.
- Instructors are spending more time during the first two weeks to ensure students are in a course that is a good fit both for students' educational goals and level. Some students are advised to move up in level. If instructors are concerned about a student's extremely weak pre-requisite skills, they communicate options for the needed skill building: online resources posted on the Success Center web page, extra time planned for the Math Lab and office hours, and/or transferring to a preparatory course - especially for the STEM courses
- Increased focus on equity minded teaching professional development and discussions including
    - Attendance at numerous workshops, conferences, institutes, presentations, and round tables related to equity minded teaching and institutional equity minded practices
    - Standing agenda 10-minute item on "equity in teaching" with a mini presentation and then open discussion sharing ideas
    - Book discussion on Equity in Grading
    - Adoption of new practices such as rewriting syllabi to be more welcoming and regular dialogue on best practices
- Collaborations With the Success Center
    - The Division Chair regularly meets with the director of the Success Center to maintain strong communication and collaborations between the tutors and the math faculty as well as develop solutions for courses with struggling students.
    - Instructional Aides are observers in many math Canvas courses.

- Statistics faculty regularly collaborate with the staff in the Stat Lab to help them best support students. This includes sharing materials, inviting an academic success coach to be an observer in Canvas, and coordinating systems of early alert for statistics students.
- Use of embedded tutors has increased, and more dialogue has been shared about effective practices with embedded tutors.
- There has been increased focus on Math 242 support and there are plans to further support Math 232 students with specific outreach.
- Math faculty and Success Center staff have increased promotions about the Success Center. In classrooms, flyers with the Center's offerings are posted. Online email promotions have been shared and the sample video of how to use the Success Center tutoring is shared in math classes.
- The Math Division shares calendars and testing dates to help guide peak staffing needs in the Math Lab.
- The Math Division shares resources to post on the Success Center webpage such as MyOpenMath, Khan Academy, MathisPower4you, etc.

Budget Notes

The division will continue to evaluate the implementation of the Student Centered Funding Formula (SCFF) and what the division can do to support the fiscal stability of Cuesta College. Currently, the division is focused on the following:

- Implementation and support for AB705, which is the best way for the division to increase the number of students that successfully complete transfer level math and English courses in their first year.
- Encouraging students to apply for financial aid
- Encouraging students to apply for earned degrees and certificates, which our transfer level students may neglect to do.
- Support implementation of Guided Pathways which should increase success rates as well as earned degrees and certificates.
- Continue to work with at risk populations in order to increase their success rates

Facility and Technology Notes

- New Math building on SLO campus Spring 2018
- 4114 was converted into a Statistics lab classroom with tables and Chromebooks
- 3112 instructor technology was upgraded

- North county classrooms need to upgrade instructor technology -- it is taking a long time due to the slow progress of implementing the bond improvements
- N2408 and 4111 had student computers replaced with Chromebooks
- 2601 and 2602 have Chromebook carts for statistics courses and other math courses
- Several classrooms now have an OWL to allow for simultaneous Zoom and in person instruction

Staffing Notes

With AB705 and the college's messaging for students to take Math and English Fall semester, there is a challenge to balance staffing between Fall and Spring semester with a potentially significant difference in offerings. In addition, with the implementation of AB705 and the many online offerings since the pandemic, our math schedule has been shrinking, which has made it challenging to offer consistent work to adjunct faculty.

VII. After completing and submitting this document, please complete the Overall Program Strength and Ongoing Viability Assessment with your Dean before May 13, 2022.

SIGNATURE PAGE

Faculty, Director(s), Manager(s), and/or Staff Associated with the Program

Instructional Programs: All full-time faculty in the program must sign this form. If needed, provide an extra signature line for each additional full-time faculty member in the program. If there is no full-time faculty associated with the program, then the part-time faculty in the program should sign. If applicable, please indicate lead faculty member for program after printing his/her name.

Instructional Programs: All full-time director(s), managers, faculty and/or classified staff in the program must sign this form. (More signature lines may be added as needed.)

Denise Chellsen	Denise Chellsen (Feb 9, 2022 08:59 PST)	Feb 9, 2022
Division Chair	Signature	Date
Guillermo Alvarez Pardo	Guillermo Alvarez Pardo (Feb 9, 2022 10:42 PST)	Feb 9, 2022
	Signature	Date
Shelby Burnett	Shelby Burnett	Feb 9, 2022
	Signature	Date
Gabriel Cuarenta-Gallegos	Gabriel Cuarenta-Gallegos	Feb 9, 2022
	Signature	Date
William Demarest	William Demarest (Feb 9, 2022 11:46 PST)	Feb 9, 2022
	Signature	Date
Jeffrey Gervasi	Jeffrey Gervasi	Feb 9, 2022
	Signature	Date
Michael Kinter	Michael Kinter (Feb 9, 2022 12:17 PST)	Feb 9, 2022
	Signature	Date

Matthew Knudsen		Feb 9, 2022
	Signature	Date
Greg Lewis	Greg Lewis (Feb 9, 2022 14:33 PST)	Feb 9, 2022
	Signature	Date
Ryan Lowenstein	Ryan Lowenstein (Feb 10, 2022 11:03 PST)	Feb 10, 2022
	Signature	Date
Jodi Meyer	Jodi Meyer (Feb 10, 2022 12:25 PST)	Feb 10, 2022
	Signature	Date
Michael Mogull		Feb 10, 2022
	Signature	Date
Jennifer Sanders Moreno	Jennifer Sanders-Moreno (Feb 10, 2022 12:40 PST)	Feb 10, 2022
	Signature	Date
Robert Schwennicke	Robert Schwennicke (Feb 10, 2022 12:40 PST)	Feb 10, 2022
	Signature	Date
Mark Turner	Mark Turner (Feb 10, 2022 12:44 PST)	Feb 10, 2022
	Signature	Date
Joseph Vasta	Joe Vasta (Feb 10, 2022 12:45 PST)	Feb 10, 2022
	Signature	Date

CPPR Math Signature Page-Feb2022

Final Audit Report 2022-02-10

Created:	2022-02-09
By:	Cathie Babb (cbabb@cuesta.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAAtWORfT8ccCNrViRPgDcbFvHhzXm0eyH-

"CPPR Math Signature Page-Feb2022" History

Document created by Cathie Babb (cbabb@cuesta.edu)
2022-02-09 - 4:33:46 PM GMT- IP address: 209.129.64.75

Document emailed to Denise Chellsen (dchellse@cuesta.edu) for signature
2022-02-09 - 4:55:56 PM GMT

Email viewed by Denise Chellsen (dchellse@cuesta.edu)
2022-02-09 - 4:58:42 PM GMT- IP address: 104.47.73.126

Document e-signed by Denise Chellsen (dchellse@cuesta.edu)
Signature Date: 2022-02-09 - 4:59:01 PM GMT - Time Source: server- IP address: 141.126.64.30

Document emailed to Guillermo Alvarez Pardo (guillermo_alvarezpar@cuesta.edu) for signature
2022-02-09 - 4:59:03 PM GMT

Email viewed by Guillermo Alvarez Pardo (guillermo_alvarezpar@cuesta.edu)
2022-02-09 - 5:25:23 PM GMT- IP address: 104.28.123.185

Document e-signed by Guillermo Alvarez Pardo (guillermo_alvarezpar@cuesta.edu)
Signature Date: 2022-02-09 - 6:42:54 PM GMT - Time Source: server- IP address: 71.93.57.54

Document emailed to Shelby Burnett (shelby_burnett@cuesta.edu) for signature
2022-02-09 - 6:42:56 PM GMT

Email viewed by Shelby Burnett (shelby_burnett@cuesta.edu)
2022-02-09 - 6:43:06 PM GMT- IP address: 174.87.156.162

Document e-signed by Shelby Burnett (shelby_burnett@cuesta.edu)
Signature Date: 2022-02-09 - 6:43:25 PM GMT - Time Source: server- IP address: 174.87.156.162

Document emailed to Gabriel Cuarenta-Gallegos (gabriel_cuarentagall@cuesta.edu) for signature
2022-02-09 - 6:43:26 PM GMT

Email viewed by Gabriel Cuarenta-Gallegos (gabriel_cuarentagall@cuesta.edu)
2022-02-09 - 6:45:52 PM GMT- IP address: 104.47.73.254

Document e-signed by Gabriel Cuarenta-Gallegos (gabriel_cuarentagall@cuesta.edu)
Signature Date: 2022-02-09 - 6:46:00 PM GMT - Time Source: server- IP address: 209.129.64.79

Document emailed to William Demarest (william_demarest@cuesta.edu) for signature
2022-02-09 - 6:46:02 PM GMT

Email viewed by William Demarest (william_demarest@cuesta.edu)
2022-02-09 - 7:46:13 PM GMT- IP address: 104.47.74.126

Document e-signed by William Demarest (william_demarest@cuesta.edu)
Signature Date: 2022-02-09 - 7:46:31 PM GMT - Time Source: server- IP address: 47.35.43.213

Document emailed to Jeffrey Gervasi (jeffrey_gervasi@cuesta.edu) for signature
2022-02-09 - 7:46:33 PM GMT

Email viewed by Jeffrey Gervasi (jeffrey_gervasi@cuesta.edu)
2022-02-09 - 7:54:27 PM GMT- IP address: 209.129.64.79

Document e-signed by Jeffrey Gervasi (jeffrey_gervasi@cuesta.edu)
Signature Date: 2022-02-09 - 7:54:48 PM GMT - Time Source: server- IP address: 209.129.64.79

Document emailed to Michael Kinter (mkinter@cuesta.edu) for signature
2022-02-09 - 7:54:50 PM GMT

Email viewed by Michael Kinter (mkinter@cuesta.edu)
2022-02-09 - 8:16:56 PM GMT- IP address: 104.47.74.126

Document e-signed by Michael Kinter (mkinter@cuesta.edu)
Signature Date: 2022-02-09 - 8:17:33 PM GMT - Time Source: server- IP address: 209.129.64.79

Document emailed to Matt Knudsen (mknudsen@cuesta.edu) for signature
2022-02-09 - 8:17:35 PM GMT

Email viewed by Matt Knudsen (mknudsen@cuesta.edu)
2022-02-09 - 9:33:43 PM GMT- IP address: 104.47.73.126

Document e-signed by Matt Knudsen (mknudsen@cuesta.edu)
Signature Date: 2022-02-09 - 9:34:21 PM GMT - Time Source: server- IP address: 209.129.64.79

Document emailed to Greg Lewis (glewis@cuesta.edu) for signature
2022-02-09 - 9:34:22 PM GMT

Email viewed by Greg Lewis (glewis@cuesta.edu)
2022-02-09 - 10:33:32 PM GMT- IP address: 104.47.73.254

Document e-signed by Greg Lewis (glewis@cuesta.edu)
Signature Date: 2022-02-09 - 10:33:54 PM GMT - Time Source: server- IP address: 209.129.63.78

Document emailed to Ryan Lowenstein (ryan_lowenstein@cuesta.edu) for signature
2022-02-09 - 10:33:56 PM GMT

Email viewed by Ryan Lowenstein (ryan_lowenstein@cuesta.edu)
2022-02-10 - 7:03:08 PM GMT- IP address: 104.47.73.126

Document e-signed by Ryan Lowenstein (ryan_lowenstein@cuesta.edu)
Signature Date: 2022-02-10 - 7:03:17 PM GMT - Time Source: server- IP address: 209.129.64.79

Document emailed to Jodi Meyer (jmeyer@cuesta.edu) for signature
2022-02-10 - 7:03:20 PM GMT

Email viewed by Jodi Meyer (jmeyer@cuesta.edu)
2022-02-10 - 8:25:17 PM GMT- IP address: 104.47.73.126

Document e-signed by Jodi Meyer (jmeyer@cuesta.edu)
Signature Date: 2022-02-10 - 8:25:29 PM GMT - Time Source: server- IP address: 174.85.85.181

Document emailed to Michael Mogull (michael_mogull@cuesta.edu) for signature
2022-02-10 - 8:25:31 PM GMT

Email viewed by Michael Mogull (michael_mogull@cuesta.edu)
2022-02-10 - 8:28:49 PM GMT- IP address: 71.92.247.25

Document e-signed by Michael Mogull (michael_mogull@cuesta.edu)
Signature Date: 2022-02-10 - 8:29:10 PM GMT - Time Source: server- IP address: 71.92.247.25

Document emailed to Jennifer Sanders-Moreno (jennifer_sandersmore@cuesta.edu) for signature
2022-02-10 - 8:29:12 PM GMT

Email viewed by Jennifer Sanders-Moreno (jennifer_sandersmore@cuesta.edu)
2022-02-10 - 8:39:16 PM GMT- IP address: 104.47.73.254

Document e-signed by Jennifer Sanders-Moreno (jennifer_sandersmore@cuesta.edu)
Signature Date: 2022-02-10 - 8:40:22 PM GMT - Time Source: server- IP address: 97.84.119.144

Document emailed to Robert Schwennicke (rschwenn@cuesta.edu) for signature
2022-02-10 - 8:40:23 PM GMT

Email viewed by Robert Schwennicke (rschwenn@cuesta.edu)
2022-02-10 - 8:40:35 PM GMT- IP address: 104.47.73.254

Document e-signed by Robert Schwennicke (rschwenn@cuesta.edu)
Signature Date: 2022-02-10 - 8:40:47 PM GMT - Time Source: server- IP address: 209.129.64.192

Document emailed to Mark Turner (mturner@cuesta.edu) for signature
2022-02-10 - 8:40:49 PM GMT

Email viewed by Mark Turner (mturner@cuesta.edu)
2022-02-10 - 8:42:35 PM GMT- IP address: 104.47.73.254

Document e-signed by Mark Turner (mturner@cuesta.edu)
Signature Date: 2022-02-10 - 8:44:35 PM GMT - Time Source: server- IP address: 209.129.64.79

Document emailed to Joe Vasta (jvasta@cuesta.edu) for signature
2022-02-10 - 8:44:37 PM GMT

Email viewed by Joe Vasta (jvasta@cuesta.edu)
2022-02-10 - 8:45:11 PM GMT- IP address: 104.47.73.254

Document e-signed by Joe Vasta (jvasta@cuesta.edu)
Signature Date: 2022-02-10 - 8:45:32 PM GMT - Time Source: server- IP address: 209.129.64.117

Agreement completed.
2022-02-10 - 8:45:32 PM GMT