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Collector: Email Invitation 1 (Email)
Started: Monday, December 11, 2023 12:52:11 PM
Last Modified: Tuesday, December 12, 2023 2:46:03 PM
Time Spent: Over a day
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Page 1: I. Program Overview and Update

Q1

1. Department(s) Reviewed:

Mathematics

Q2

2. Lead Author:

Lamia Raffo

Q3

3. Collaborator(s) - list of any person that participated in the preparation of this report:

Terrie Nichols
Rachel Polakoski

Q4

4. Dean/Manager(s):

Tammi Marshall

Q5

5. Initial Collaboration Date with Manager/Dean:

Enter the initial date you met **11/17/2023**
with your dean to discuss
your program review using
this format: MM/DD/YYYY

Q6

6. Program Update (Required): Please summarize the changes, additions, and achievements that have occurred in your program since the last program review. You can access 2022 program reviews on the program review webpage.

Changes/Additions

- After the pandemic, the Math Department returned to on-campus teaching and learning and has been offering progressively more in person classes since fall 2022. In spring 2023 approximately 48% of sections were offered in person. In fall 2023, approximately 68% of sections were offered in person and 31% were offer online (either asynchronous or synchronous).
- Simultaneously, we are offering more courses online. Math 160, 060+160, 176, 178, 180 and 245 are now offered online. Our goal is to meet the high demand for online math courses and to accommodate challenging life circumstances that preclude students from attending in-person classes.
- The Math Department is heavily vested in developing a series of Interactive Math on Canvas (IMC) textbooks. Our IMC textbooks are completely contained within Canvas and provided to students at no cost. Currently we have four IMC textbooks – including Interactive Calculus I on Canvas which we launched in fall 2023 with only a minimal amount of inflight construction. We continually assess each Interactive Math on Canvas textbook and revise/edit as directed by the appropriate Community of Practice group in our department.
- In fall 2022, the Math Department discontinued the pre-semester Gear Up for Success workshops for MATH 178, 180, and 280 due to equity issues. Thus, to better support all students within the classroom and provide equitable access to review materials, we are developing prep Modules to include in our Interactive Math on Canvas course. These modules provide just-in-time review and can be implemented at the instructor's discretion.
- The former Chair of the Math Department, Tammi Marshall, accepted a new role as the Interim Dean of Math, Science, and Engineering starting July 1, 2023. Consequently, Dan Curtis and Rachel Polakoski are serving as the Math Department Co-Chairs.
- In fall 2023, we offered MATH 180+080 (Calculus I with corequisite support) for the first time. Students who place into PreCalculus or Calculus I are eligible to take MATH 180+080. By offering this course combo, we hope to further narrow equity gaps and increase student success and persistence rates in the calculus sequence and consequently the STEM pipeline.
- The STEM disciplines are collaborating via Airtable to create a more student-centered schedule ensuring classes do not overlap across disciplines.
- With the deletion of Math 110 (Intermediate Algebra), discipline faculty outside the Math Department may need to review basic math skills in their courses. Through the AB 1705 (Equitable Placement) grant, the Math Department is working to collaborate with discipline faculty in developing review materials for their courses. One math faculty has already started creating just-in-time review modules for the Center of Water Studies (CWS). Additionally, the Math Department is offering MATH 060+PSY 215 for the last time this semester; moving forward the PSY 215 instructors will offer the MATH 060 as review materials.
- In fall 2023, we received a Zero Textbook Cost (ZTC) Implementation grant to design, develop, and implement two additional Interactive Math on Canvas textbooks. In addition, we applied for a Zero Textbook Cost (ZTC) Acceleration grant through the California Community College Chancellor's Office to design, develop, and implement additional Interactive Math on Canvas textbooks so that a student could get a degree in Math with all ZTC textbooks. Our goal is to create interactive learning outside of class and to alleviate the financial burden of purchasing high-cost math textbooks.

Achievements

- We received a Learning Labs grant to fund our work in 1) editing the Interactive PreCalculus on Canvas textbook, and 2)

developing our Interactive Calculus I on Canvas textbook.

- The beta version of our Interactive Calc I on Canvas textbook is complete. In fall 2023, students began using this zero-cost textbook. Moreover, every Interactive Math on Canvas textbook is available to students on the first day of class.
 - We developed and implemented the interactive learning materials on Canvas for MATH 080 (the support course for Calculus I). Moving forward, we will assess and revise these materials as needed.
 - The interactive learning materials on Canvas for MATH 076 (the support course for PreCalculus) are complete. We are still reviewing and revising the first draft of these materials and will implement them in spring 2024.
 - A few math faculty presented at the Strengthening Student Success Conference (SSS) where we shared the four Interactive Math on Canvas textbooks with colleges throughout the State.
 - In the last year, four MATH 160 classes, one MATH 176 class, and one MATH 245 class are badged through the Peer Online Course Review (POCR) process. Also, four math instructors are POCR badged. Consequently, any student looking for a Statistics, Precalculus, or Discrete Mathematics class through the CVC (California Virtual College) may be incentivized to select one of our classes because they are listed as “quality reviewed” at the CVC.
 - We are honored to note that one of our full-time math faculty was awarded the Teaching Excellence Award in spring 2023.
 - As part of our ongoing efforts to eliminate equity gaps, in the last year 30% of all math faculty completed the Equity-Minded Teaching and Learning Institute (EMTLI), 22% completed the @ONE Humanizing STEM Online course, and 26% completed the @ONE Equitable Grading Strategies course. Moving forward, we plan to increase these percentages.
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Page 2: II. Assessment and Student Achievement

Q7

Yes

7. Did your program complete and submit SLO assessment in the last year? If you are unsure, check the most recent updates on your program's SLO Assessment Updates.

Q8

7a. Which SLOs did you assess in the last year? If you did not assess in the last year, please share why, including whether your program is experiencing barriers to assessment or data submission, and/or if your program would benefit from outcomes and assessment support.

Our SLO assessments are up to date and are routinely assessed as part of our every 4-year assessment cycle. Our current 4-year assessment cycle began during the pandemic in fall 2021. Consequently, the Math department developed a new assessment plan for our current cycle. From fall 2022 through spring 2024, we will assess all math courses. Math faculty uses assessment data as part of our evidence-based decision-making and to improve course content, pedagogical practices, and the math program in general.

- Courses that have been assessed within the last 4 years – Math 020+120, Math 125, Math 126, Math 060+160, Math 170, Math 175, Math 076+176, Math 078+178, Math 180, Math 281, and Math 245. All were assessed in fall 2022 and spring 2023.
- Courses to be assessed spring 2024 – Math 280, 284, 285, and 080.
- Math 121 has not been offered and will be deactivated next year since the department has no plan to offer it in the near future.

Some SLO assessment data from spring 2023 have not yet been uploaded to TracDat. The department will ensure this data is uploaded before the start of spring 2024.

Q9

8. Please share any outcomes assessment projects your program has worked on in the last year, including SLOs on Canvas, PLOs by ACP, Equitable Assessment Strategies (innovative collective/common assessments, project-based, work-based learning, student-centered, etc.), or other.

As each Interactive Math on Canvas textbook becomes available, we update our assessment practices and procedures. For example, SLO assessments are embedded into each Interactive Math on Canvas textbook where each SLO is assessed multiple times using multiple modalities. The Outcomes feature in Canvas simplifies SLO assessment and makes it meaningful by allowing instructors to track outcome results in real-time while grading. Additionally, some assignments such as quizzes, are automatically graded by Canvas, so the attached SLO is automatically assessed. Consequently, the SLO data is automatically generated, and charts and reports are created for the instructor. This facilitates regular ongoing assessments every semester and provides faculty with meaningful and timely information for their classes. To date, SLO have been assessed on Canvas in MATH 020, MATH 060, MATH 078, MATH 120, MATH 160, MATH 176, MATH 178, MATH 180, and MATH 245.

Additionally, we updated our Program Level Outcomes (PLO) to align with other STEM programs. Consequently, our PLO are now part of the shared STEM ACP. We have completed a mapping between SLO to PLO for assessment, and have already begun assessing our new PLO using the course SLO assessments. In addition, some math courses are designed to directly assess PLO through projects. One faculty member assessed Math 160 PLO on Canvas. Also, Math 245 was assessed using a direct assessment of one of the PLO with a project.

Three full-time faculty members have taken the @ONE Equitable Grading Strategies course. Since taking this course, one faculty member has developed a labor-based grading practice in Math 060 and another used Contract Grading in MATH 120 and MATH 020.

Attached you will find our SLO assessment plan and our PLO assessment mapping document.

Q10

OPTIONAL: You may upload a copy of any assessment-related documents here. If you have an Excel sheet, please convert it to one of the supported files listed below before submission.

Math%20SLO%20%26%20PLO%20Assessment%20Plan%202021-2025.pdf (146.2KB)

Page 3: II. Assessment and Student Achievement

Q11**9. Please discuss any equity gaps in access or success**

Access/Enrollment –Please refer to the attached Table 9.1 Access. This table disaggregates enrollment rates by race and gender. The table also allows us to compare math enrollment rates to collegewide enrollment rates.

Summary of our findings regarding Access, which the college defines as Self-Selected Enrollment.

We begin by noting that “access” and “enrollments” are not the same. Access is the percentage of incoming students who have access to a transfer-level math course (100% for math). In this table, it appears that each race or gender percentage represents a proportion of the larger group where the “larger group” is either all math students or all collegewide students.

We will discuss the equity gaps in math enrollments as compared to collegewide enrollments.

First, since all students have access to any first-tier transfer-level math class regardless of their course-taking history in math, there are no barriers to enrollment.

When disaggregating by race, we see no equity gap for students taking math compared to college-wide data. However, when we disaggregate by gender, underrepresentation of female students occurs in fall 2022 and spring 2023. For example, 47% of students enrolled in at least one math course are designated female and 55% of collegewide enrollments are designated female. Comparing fall 2022 to spring 2023 enrollments in math, we see a small improvement for females. In spring 2023, 49% of all math students are female and 49% are male; however, the equity gap persists as 55% of all college students are female and 44% are male.

Success – Please refer to the attached Table 9.2 Success. This table disaggregates success rates by race and course modality (on-campus vs 100% online) for fall 2022 and spring 2023. Also, the table allows us to compare math success rates to collegewide success rates.

Summary of our findings regarding Success Rates

Comparing the data within our discipline, we see that the on-campus success rates remained steady or increased from fall 2022 to spring 2023. But the success rates for students taking online math classes are inconsistent and are statistically lower than the on-campus success rates for most races. Also, the equity gap in math success rates persists for Hispanic/Latino and African American/Black students.

Additionally, the success rates for African American/Black students in each course-taking modality is relatively the same within math and is significantly higher than the collegewide success rates. However, the math success rates in each course-taking modality for White and Hispanic/Latino students is lower than the collegewide success rates.

Q12

10. What action will the department or discipline take to address these equity gaps? If equity gaps have been reduced or eliminated, please share what the program did to achieve this. If equity gaps still exist, consider the specific steps your department will take to address equity gaps.

The Math Department is committed to finding solutions through its equity work. Since 2015, math faculty have focused their time and energy to closing equity gaps by eliminating remedial math courses and providing 100% access to transfer-level courses. We are also creating curricula, practices, and cultures that support all students, and in particular, underserved students to allow them to realize their own visions, aspirations, and goals in our program.

Additionally, we will collaborate with other STEM disciplines to identify and implement strategies for closing the enrollment gap for females in math. However, women in STEM is a larger societal issue that requires systemic changes at the local, state, national, and worldwide levels. Therefore, it may be the case that Cuyamaca STEM is limited to developing a campaign that encourages female students enroll in STEM courses.

To better serve students and improve student success and access, i.e., eliminate equity gaps in success rates for Hispanic/Latino students and increase enrollment in math courses for female students, we are developing practices of culturally responsive and equity-minded teaching and learning. Our plan is to implement equity-minded teaching and learning within each of our courses and every math class. Here are some examples.

- We seek to create opportunities to incorporate students' cultural wealth in the classroom – such as attending to the affective domain through in-class and out-of-class activities, and individual student surveys.
- Many (but not yet all) math instructors have evolved instructional methods and redesigned course materials to be culturally relevant.
- As instructors, we encourage each other to reach out to students who have stopped progressing in the course and provide those students with early interventions. We also encourage one another to modify submission policies and be more flexible with assignment deadlines.
- To increase the success rate, the Math Department is offering staggered start courses such as 11-week and 12-week classes of Math 160 online and 14-week class of Math 245 online to allow those students who drop from classes during the first two weeks the opportunity to switch to a new section later in the semester. This also helps with students who are not able to enroll at the start of the semester. This allows students to move forward without costing them an additional semester or money. As part of the department's COP and mentoring opportunities, we encourage faculty to reach out to struggling students so they can intervene before students go astray from their intended path. These staggered start courses also help financial aid students, veterans, and other student groups.
- To address hidden biases, promote open communication about cultural differences, and raise faculty awareness about racism, 30% of all math faculty have completed the Equity-Minded Teaching and Learning Institute (EMTLI), and we plan to increase this percentage. All who participated agreed that the program is transformational. Through the program, instructor-level data and college-level data are shared with each instructor to help them identify which groups of students are disproportionately impacted in their classes. To mitigate the disproportional impact, the instructors develop culturally relevant content and build positive learning experiences for students. To encourage other math faculty to make similar reforms, the classroom policies, and pedagogical practices developed in the EMTLI program are shared and discussed in detail in our course-specific COP (Community of Practice) groups. Moving forward, our math faculty will continue to develop and implement equitable teaching practices and procedures that are designed to eliminate equity gaps and foster culturally responsive teaching while optimizing learning. Here are a few practices that some math instructors have implemented.
 - o Adoption of liquid syllabi that are more welcoming, friendly, streamlined, and navigable
 - o Adoption of equity-minded classroom policies and procedures
 - o Facilitating a more student-centered learning environment in all learning modalities
 - o Development and implementation of culturally relevant materials and activities
 - o Evolving faculty mindsets

Q13

11. How has this data impacted the goals set in your previous comprehensive program review?

Here are two goals from our previous program review.

Goal 1: Assess, revise as needed, and continue to improve Math Pathways and

Goal 2: Support student success in each Academic and Career Pathway (ACP)

The above data indicates that we have made improvements in success rates for African American/Black students and female students in some modalities and terms. We attribute these improvements to our department's equity work, but this work is incomplete. The above data also indicates that the equity gap in success rates persists for Hispanic/Latino students. We believe that the following strategies will further narrow the equity gaps for all disproportionately impacted student groups.

- Dramatically increase the percentage of math instructors who participate in the Equity-Minded Teaching and Learning Institute (EMTLI), the @ONE Humanizing STEM Online course, and the @ONE Equitable Grading Strategies course.
 - Make equity-minded teaching and learning, equitable grading strategies, humanizing STEM, and development and implementation of culturally relevant curriculum and pedagogical practices the primary focus of our course-specific Community of Practice (COP) groups.
 - Continue to develop and implement our Interactive Math on Canvas textbooks until all math courses utilize these zero-cost textbooks.
 - Continue to develop just-in-time review materials and embed them in every Interactive Math on Canvas textbook.
-

Q14

12. Please describe the most significant or impactful ways your program worked across the college to advance the college's vision of equity, excellence and social justice through education over the past year.

One of the most significant ways that the Math department is working to advance the College's vision of equity, excellence, and social justice is by working towards more culturally relevant curriculum; this is accomplished through our Community of Practice meetings (COP). The goal of the Math COP is to eliminate equity gaps in our department's course retention and success rates. This goal is partially related to the College's new strategic plan. We are in the process of reforming the COP groups for Math 160 (Statistics), Math 176 (PreCalculus), and Math 180 (Calculus I) so that they are better prepared to transform pedagogical practices and enhance equity-minded teaching and learning in the student-centered learning environment. Once the process is complete for these COP groups, the department will focus on reforming Math 280, Math 281, and Math 285.

The Math department has implemented many teaching approaches to teaching math with an equity lens. For example, to help reduce students' financial difficulties and make our program more equitable, math faculty have developed or adopted low to no-cost learning materials in MATH 160, MATH 176, MATH 245, MATH 284, and Math 180. We intend to continue this practice until low to no-cost materials are implemented in every math course. We develop these courses focusing on equitable assessment and grading strategies and working with instructors' mindsets to foster growth and apply timely interventions by reaching out to students to help them remain in class and succeed. We design the assignments in the Interactive Math textbooks by using cycles of exploration and discovery, instruction, formative assessments, and instructor feedback. Diversifying teaching methods and grading procedures is another approach we implement in the interactive Math on Canvas textbook, and we use evidence-based practices that foster cultures of growth in the classroom. The math department's priority is developing strategies to work toward increasing student success, retention, and persistence rates.

The math department has met the requirements of AB 705 and AB 1705, we eliminated remedial courses and have allowed access to transfer-level courses to our students at Cuyamaca College. As mentioned earlier, we are developing free textbooks that are contained completely in our learning management system, i.e., Canvas shells. We will use the AB 1705 grant and local ZTC Implementation grant to develop textbooks for the other math classes during the next two years.

Furthermore, we have not embraced social justice in our courses as a whole department; it is not a collective movement in implementing social justice. However, a few instructors are applying it in their courses' assignments after attending EMTLI and @ONE Equitable Grading Strategies. We are aiming to have more discussions on ways to promote and incorporate social justice as a department.

Q15

13. What challenges is your program still experiencing due to the disruption of operations caused by the pandemic and the need to offer services in various modalities?

Since the data shows that online math classes fill faster and have longer wait lists sooner, we believe that a significant proportion of math students prefer online math classes. And since success rates in some online math classes are traditionally lower than the success rates in other learning modalities, we have developed and are beginning to implement the following strategies to increase success rates in our online classes.

- Early interventions to assist students in catching up when they fall behind
- Peer-to-peer and student-to-teacher interactions
- Equity-minded teaching and learning
- A Community of Practice (COP) for improving teaching and learning in online math classes

Moreover, since online math classes fill more quickly and have longer wait lists, we also believe that offering a full complement of online math classes would allow us to meet the needs of students who are unable to attend on-campus classes. To this end, we are developing online classes for all courses in our degree program. We also believe that offering more sections of online math classes would increase enrollment in math and potentially increase the percentage of math enrollments who are female. Consequently, it is unfortunate that faculty are limited to teaching a maximum of 70% of their load online.

Lastly, starting in Fall 2024, the Math Department will be phasing out Zoom classes and replacing them with HyFlex classes in order to better serve the needs of our students who want a remote and in-person hybrid option.

Q16

OPTIONAL: Please upload any documentation you would like to include as part of your responses to this section of the program review.

Tables%20for%20Math%20Department%20Annual%20Update%20Spring%202024.docx (126.4KB)

Page 4: II. Assessment and Student Achievement continued

Q17

Yes

11. Does your department offer classes that are approved distance education courses?

Page 5: DE Course Success Rates

Q18

12. If there were differences in success rates for distance education (online) versus in-person sections of program courses in your last comprehensive program review, what has the department done to address these disparities? If online and in-person sections had comparable success rates, please describe what the program did to achieve that.

After the Pandemic, the college started to return slowly to offering face-to-face classes and continued to hold some online and synchronous (ERT/Zoom) classes too.

Since the Math department's last Annual Update was fall 2022, we will make comparisons for the fall 2022, and spring 2023 data.

Success – The table below shows data from fall 2022 and spring 2023 for math courses offered with different modalities. The table provides the success rate for students who are taking classes face-to-face/on campus, students who are taking classes 100% online, students taking math classes that are conducted less than 50% online and more than 50% face-to-face/on campus, and students taking math classes that are conducted more than 51% online and less than 51% face-to-face/on campus.

We see that the on-campus classes and the ones conducted with less than 50% online have a higher success rate than the online classes. The data shows that the student success rate has increased from fall 2022 to spring 2023 for all modalities except for the courses that are offered with more than 51% online. We are attributing this small success to multiple factors:

- Some faculty reach out to students during the first two weeks of the semester and provide them with resources and interventions,
- The department is developing the zero-text-cost courses, ZTC that are free to our students on the first day of the semester,
- Some faculty are encouraged to be flexible with assignment modalities and deadlines and use different grading methods and measures.
- Additionally, our COP groups continue to meet regularly to modify the courses and investigate ways to improve their teaching and learning to increase the success rate for students. In Fall 2023, we added a Teaching Math Online COP group to help those teaching asynchronous online courses. This COP regularly discusses teaching and learning strategies related to student motivation and engagement in online courses.

The math department encourages professors to offer office hours in multiple modalities. Some professors are not only offering students hours (aka office hours) in person, but they are offering student hours in Zoom to accommodate those students who cannot attend in person. This endeavor promotes student access to professors to help them be successful.

The attached Table 12.1 Online Success shows data for math courses with different modalities

Page 6: III. Previous Goals: Update

Q19

Previous Goal 1:

Assess, revise as needed, and continue to improve Math Pathways

Q20

In Progress - will carry this goal forward into next year

Previous Goal 1:

Page 7: III. Previous Goals: Update continued

Q21

Respondent skipped this question

Please describe the results or explain the reason for deletion/completion of the goal:

Q22

Respondent skipped this question

Do you have another goal to update?

Page 8: III. Previous Goals: Update continued

Q23

Increase persistence eliminate equity gaps (re-enrolling the subsequent semester or year)

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support? (Check only one)

Q24

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

a. Community of Practice and teacher mentoring

Since the birth of mathematics education, math teachers have never been trained to teach with culturally relevant materials in an equity-minded teaching and learning environment. Consequently, the Math Department's Community of Practice (COP) and Teacher Mentoring are essential to the success of Math Pathways. Each course-specific CoP requires all teachers with a current assignment in that course to meet regularly and discuss best teaching practices, just-in-time review, teaching and learning in the student-centered classroom, student engagement, and productive struggle. In the department's COP groups, assignments are developed to address students' affective needs and internal struggles or fears about being in college and/or learning math. We work on creating culturally relevant teaching materials and develop techniques for using equity-minded practices in the classroom. The COP members continually develop new instructional materials, classroom activities and assessments, and online assignments in support of these practices. In addition to the course-specific community of practices, we also added a community of practice (COP) for faculty teaching online math courses. The college supported this work by funding our COP meetings and mentor opportunities through spring 2024. The department will continue to implement these changes with the hope the college continues to support this endeavor.

b. Integration of equity-minded practices into Math Pathways

Over the last few years, 30% of members of the Math Department (part-time and full-time) have participated in the year-long Equity-minded Teaching & Learning Institute (and its predecessor). This has helped math faculty learn ways to use an equity-based lens when designing and teaching their courses. This training also included learning how to humanize our classes.

Learning more about the many different reasons students may struggle in our classes as well as how the actions of faculty affect students' behavior, the Math department invites departments such as Tutoring Services, Cuyamaca Cares, Counseling, and others to do presentations when we gather. This has helped the math faculty continue to learn how they can best provide support for students. As a result, our tight-knit community better serves our disproportionately impacted students as it can quickly identify and intervene on behalf of a struggling student to provide that student with the appropriate resources and guidance to keep the student on track.

In addition, we continually redesign our instructional materials to better serve our diverse group of students. In spring 2021, the department began updating the MATH 160 materials to make them more equity-minded and culturally relevant and the course won its first POQR badge soon after. As previously mentioned, we have just completed developing the Interactive Math on Canvas materials for MATH 176, MATH 180, and MATH 245, which includes integrating equitable teaching practices into these courses. Along with this equity-minded course redesign, the department will continue addressing the equity gaps caused by instructors' teaching and learning practices. An example of a strategy is the creation of exemplary syllabi that are more equity-minded and conducting workshops to share them with instructors within the Math Department.

c. Continued use of data to assess the effectiveness of Math Pathways and make revisions as needed.

Since the launch of Math Pathways in fall 2016, the Math Department has relied heavily on a wide variety of data to inform revisions. This has allowed us to identify where in the math pipeline we were losing students and remove or patch those holes. The data also helped us recognize the structural bias in our previous placement policy and its detrimental effects on disproportionately impacted students. This led to a significant change in how students are placed into classes and subsequently, a significant decrease in equity gaps. The department continues its commitment to data-informed decision-making by collecting and analyzing data from a wide variety of sources, including SLO and PLO data, student achievement data, and equity-minded teaching and learning data, as well as reports from the Institutional Effectiveness, Success, & Equity Office.

d. Assistance for math faculty transitioning to online or hybrid and HyFlex courses.

To assist math faculty new to online teaching, the Math department has added a community of practice (COP) for faculty teaching online math courses in addition to the course-specific community of practices. During these COP meetings, faculty discuss how to use available online tools to promote a student-centered classroom in an online setting. We are sharing best teaching practices, online

resources, and mentoring. To facilitate the sharing of resources, we have developed a Canvas shell with modules targeted for specific courses that instructors can incorporate into their courses. Additionally, we are promoting humanizing STEM online courses and encouraging faculty to enroll in these courses.

e. Work toward becoming a department where the faculty reflects the diverse nature of the students and communities we serve. One full-time math faculty retired at the end of summer 2022. As the department fills this role or brings on new part-time faculty, this allows the Math department to work toward our faculty reflecting the diverse nature of the students and communities we serve. In addition, through mentoring and the COP, the department can better retain these faculty.

Many things contribute to students' success, including teachers who are seen as role models, motivating and guiding students during their school years to prepare them for the real world. Consequently, students must see diversity within the faculty which is corroborated by research showing students do better academically and socially in this type of environment. Students need role models that can relate to the students' ethnicities, races, gender, and backgrounds. In addition, when students interact with diverse teachers, they learn about different cultures and backgrounds, which helps them build positive relationships with other students and people in the community. Moreover, greater diversity among teachers leads to diversity in course content, teaching methods, and scholarly ideas. As a result, students become more culturally and socially aware, building stronger relationships between the teacher, student, and their classmates.

Q25

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

**New faculty position,
Supplies, equipment, and/or furniture**

Q26

Do you have another goal to update?

Yes

Page 9: III. Previous Goals: Update continued

Q27

1. Previous Goal 2:

Support student success in each Academic and Career Pathway (ACP)

Q28

3. Goal Status

In Progress-will carry this goal forward into next year

Page 10: III. Previous Goals: Update continued

Q29

Please describe the results or explain the reason for deletion/completion of the goal:

Respondent skipped this question

Q30

Respondent skipped this question

Do you have another goal to update?

Page 11: III. Previous Goals: Update (If Applicable) continued

Q31

**Increase completion and eliminate equity gaps
(graduating with a degree/certificate, or transferring)**

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support?
(Check only one)

Q32

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

a. Collaboration with various college constituencies to promote student success through math and other pathways.

Last year, we collaborated with other departments to ensure that 1) we are properly preparing students for their programs, 2) students are progressing through their prerequisite math courses as quickly and efficiently as possible, and 3) we are working together to support students as they progress through their Academic and Career Pathways. For example, three math faculty members, Terrie Nichols, Anna Arroyo, and Rachel Polakoski, went to different division meetings to see what they needed regarding the development of any prep modules for their courses.

The Math Department worked with Cuyamaca's Business Department to improve our MATH 178 (Business Calculus) course and ensure that the topics covered are relevant for business students.

The MATH 178 Calculus for Business and Social Sciences Community of Practice group worked on creating a new design for our wide range of unique and diverse students at Cuyamaca College. Collaborating with Chris O'Byrne, a faculty member from Cuyamaca's Business Department as well as Duane Short, the Business Department Chair at Miramar College, the COP focused discussions on what Business majors need from the course. This has led the group to create equity-minded Excel and modeling assignments that accompany the other required course materials. In addition, the group reached out to employees at the San Diego City Water District and their experts, to achieve more cohesion in what we teach in our course, with what is needed from Business Calculus in their field of work.

For this year, we will collaborate with any department that expresses interest in developing math prep modules for their courses to support their students. Currently, one math faculty, Rachel Polakoski, is collaborating with the Center for Water Studies (CWS) to write prep modules (just-in-time review material) to assist with their students' learning. Additionally, the Engineering Department Chair (Keenan Murray) has shown interest in having the Math Department share prep modules for their students, but that work has not started yet. We will continue to reach out to other disciplines to offer help and support.

Because of the large number of math classes available to first-time students, the Math Department will continue to work with Counseling to help guide students into the appropriate math course for their academic and career goals.

b. Innovative course offerings designed to streamline student pathways.

The Math Department created a corequisite course for MATH 180 (Calculus I) to help increase student success and close equity gaps. The research done in spring 2021 showed students who are successful in MATH 176 (PreCalculus) persist to MATH 180 at only 67%. One interesting note in the report is the persistence for students in MATH 176 with support was 72% versus 65% for students in MATH 176 by itself. This same report showed the 2021-2022 MATH 180 throughput rate for students who started in MATH 176 was only 30%. The hope is to eliminate exit points and support students placed into MATH 176 by allowing them to take MATH 180 with support instead.

As part of the California Learning Labs grant the Math department received, we developed "Gear Up" modules for MATH 180. The prep modules contain videos and online resources and are used to support the corequisite support course being created for MATH 180. Since calculus is a difficult subject for students to learn and without a strong algebra and trigonometry background, students often struggle. By specifically targeting the requisite algebra and trigonometry skills, these materials provide students with the direct support they need.

As part of the California Learning Labs grant that the Math department received, we are developing "Gear Up" modules for MATH 176 and these prep modules will be finished by the end of fall 2023. For next year(s), we will write ZTC materials for additional courses. For example, we will be working toward creating "Gear Up" modules and Interactive Math on Canvas Textbooks for Math 280 (Calculus II), Math 281 (Calculus III), and Math 285 (Differential Equations) to complete our degree program. We have received two grants, the AB 1705 grant, and the local ZTC grant. These grants will be used/distributed to fund various activities and develop pedagogical practices. The development of Math 280 materials will be funded by the local ZTC and AB 1705 grants. Math 281 is partially funded by the local

ZTC, and we are looking into a state-wide ZTC fund to support this endeavor. Lastly, we will research state-wide funds to develop materials for Math 285.

c. Support Guided Pathways by helping students stay on their chosen path

The Math Department commits to supporting students who, for various academic or personal reasons, experience a setback on their pathway and to get them back on track as soon as possible. We offered staggered start courses, allowing students the opportunity to switch to a new section later in the semester. For example, we offered 11-week, 12-week, and 14-week classes; this allows them to move forward without costing them an additional semester or money. As part of the department's COP and mentoring opportunities, we encourage faculty to reach out to struggling students so they can intervene before students go astray from their intended path.

This activity is something the department would like to focus more on and plans to discuss and brainstorm ideas to help us continue this support. Thus, we are continuing with this activity/action step.

We do not have new action steps. Our degree maps are posted on the math website for students to access.

Q33

New faculty position

What resources, if any, are needed to achieve this goal?
Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q34

No

Do you have another goal to update?

Page 12: III. Previous Goals: Update continued

Q35

Respondent skipped this question

1. Previous Goal 3:

Q36

Respondent skipped this question

3. Goal Status

Page 13: III. Previous Goals: Update continued

Q37

Respondent skipped this question

Please describe the results or explain the reason for deletion/completion of the goal:

Q38

Respondent skipped this question

Do you have another goal to update?

Page 14: III. Previous Goals: Update continued

Q39 Respondent skipped this question

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support? (Check only one)

Q40 Respondent skipped this question

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

Q41 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q42 Respondent skipped this question

Do you have another goal to update?

Page 15: III. Previous Goals: Update continued

Q43 Respondent skipped this question

1. Previous Goal 4:

Q44 Respondent skipped this question

3. Goal Status

Page 16: III. Previous Goals: Update continued

Q45 Respondent skipped this question

Please describe the results or explain the reason for deletion/completion of the goal:

Page 17: III. Previous Goals: Update continued

Q46 Respondent skipped this question

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support? (Check only one)

Q47 Respondent skipped this question

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

Q48 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Page 18: IV. New Goals

Q49 No

Would you like to propose any new goal(s)?

Page 19: IV. New Goals continued

Q50 Respondent skipped this question

1. New Goal 1:

Q51 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q52 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal identified above.

Q53 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q54 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q55 Respondent skipped this question

6. How will this goal be evaluated?

Q56 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q57 Respondent skipped this question

Do you have another New Goal?

Page 20: IV. New Goals continued

Q58 Respondent skipped this question

1. New Goal 2:

Q59 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q60 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above.

Q61 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q62 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q63 Respondent skipped this question

6. How will this goal be evaluated?

Q64 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q65 Respondent skipped this question

Do you have another New Goal?

Page 21: IV. New Goals continued

Q66 Respondent skipped this question

1. New Goal 3:

Q67 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q68 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above.

Q69 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q70 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q71 Respondent skipped this question

6. How will this goal be evaluated?

Q72 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q73 Respondent skipped this question

Do you have another New Goal?

Page 22: IV. New Goals continued

Q74 Respondent skipped this question

1. New Goal 4:

Q75 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q76 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above.

Q77 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q78

Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q79

Respondent skipped this question

6. How will this goal be evaluated?

Q80

Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Page 24: Final Check

Q81

I am ready to submit my program review

Are you ready to submit your program review? If you would like to go back and review a section, select a section and click "Next."
