Comprehensive Program Review Report



Program Review - Mathematics

Program Summary

2022-2023

Prepared by: Matt Bourez

What are the strengths of your area?: The mission of the Mathematics Department is to provide a foundation for liberal arts education and a foundation for the study of the sciences. This is accomplished by providing students with a broad range of courses taught through a wide range of delivery options including traditional lecture, hybrid, and online courses. Though this past year has been challenging we continue to strive to make math courses available in all of these modalities.

We have well-qualified full time instructors within the Math Department. We have several who have published textbooks or will soon publish textbooks within their discipline. We have others who have published articles in refereed mathematical or statistical journals. We have a couple of Golden Apple Award winners and others that have been recognized for their excellence in teaching within local or state organizations. In total, we have 15 full-time faculty members in the mathematics unit. Over the past year, we have a net loss of one full-time instructor and two one adjunct member. There is a possibility for the retirement of a full-time faculty member at the end of the 2022-2023 academic year.

With our complete transition into a post-AB705 curriculum, we now examine our courses as Transfer Level (Math 5, 10, 11, 21, 35, 44, 70, and 154) and Major Courses (Math 65, 66, 67, 80, and 81). With Math 10, Math 21, Math 35, and Math 44 we further break down the analysis in courses taken with and without support.

For Transfer Level courses that can be taken with or without support we experienced the following successes.

	Fall 2021			Spring 2022				
Course	Succ	ess	En	rolled	S	uccess		Enrolled
Math 10 5	8	93		43		69		
Math 10 with Support		61		102		26		47
Math 21	364		679		344		687	
Math 21 with Support		326		665		264		507
Math 35	34		92		40		75	
Math 35 with Support	18		105		30		67	
Math 44	29		57		19		28	
Math 44 with Support		60		103		48		106

There was a total of 1764 students that successfully passed one of these classes during the 2021-2022 academic year (fall and spring) compared to 1918 students during the 2020-2021 academic year. This would constitute an 8% decrease in the number of students that successfully completed these courses. This is the second year in a row that we have experiences a decrease in throughput for these course. Even with these decreases, this throughput is still nearly double what it was in academic years prior to AB705.

Last year math placement was altered so that underprepared students will be required to begin the STEM pathway in MATH 44 as opposed to MATH 35 with the previous placement model. We are continuing to see increased enrollment in math 44 with total enrollment for MATH 44 increasing from 114 in the 2020-2021 academic year to 160 in the 2021-2022 academic year. We continue to remain hopeful of increased success in both MATH 44 and MATH 35 courses.

For Transfer Level courses that cannot be taken with support, we experienced the following success.

	Fall 2021		Spring 2022	
Course	Success	Enrolled	Success	Enrolled

Math 11	47	63		48	76
Math 5	17	56	64	156	
Math 70	24	30	9	19	
Math 154	44	83	30	57	

Overall, the success rate (excluding EW grades) decreased from 89% to 68% for Math 11 from the 2020-21 academic year to the 2021-2022 academic year; Success for Math 70 decreased from 68% to 55%; And success for Math 154 decreased from 77% to 53%. MATH 005 was taught for the first full academic year and experienced a success rate of 38%. Overall success rates were significantly lower than the previous academic year. Also enrollment in MATH 11, 070, and 154 have decreased. On the positive side, MATH 005 is showing outstanding popularity.

For Major courses

	Fall 2021			Spring 2022					
Course	Success		Enrolled		Success		Enrolle	ed	
Math 65	126	209	65		137				
Math 66	35	62		63			108		
Math 67	12	26		27			38		
Math 80	9		20		9				12
Math 81						10		16	

Overall, we saw fairly significant decreases in success rates. However, throughput remained the same to slightly increasing due to increased enrollment. Overall, STEM students struggled as we shifted these classes back to an in-person format.. With the effects of the COVID pandemic and the continued impact of AB705, enrollment in math courses has changed. The FTES generated by math courses in 2021/2022 is 731.60, which is down 45.23 FTES from the previous year and down 183.57 from two years ago. The decreases in FTES experience in math since the implementation of AB705 have begun to level off. This contributed to a slight increase in the department's efficiency (FTES/FTEF) to 15.05 from the previous year's mark of 14.52. Though this is below the efficiency set by the math depart two years ago of 16.19 and the target ration of 17.5, it marks the first positive change since AB705 implementation.

Our department prides itself on providing our students with a quality mathematics education by maintaining high academic standards as well as keeping up with the latest educational developments by attending state and national conferences such as AMATYC (American Mathematical Association of Two-year Colleges), CMC^3 (California Mathematics Council of Community Colleges), and ICTCM (International Conference on Technology in Collegiate Mathematics) among others. This past year, much of our time was spent reacting to various changes. As we continue our efforts to fine tune both our math placement and course offerings in response to AB705, we have a great deal of time and effort adapting to the dramatic shift in teaching methods caused by the COVID-19 pandemic. The math department has handled these changes well and will continue to adapt as needed. In the upcoming year, we are looking to address AB1705 and the impact that it will have on math placement and our course sequence.

The Math department is intimately involved in both the MESA and SETA programs. These programs offer valuable opportunities for our students. These opportunities serve to enrich their academic experience and help meet their educational and career objectives. Faculty members participate in a variety of ways including working with student mentors to provide Academic Excellence Workshops, presenting interesting research and mathematical ideas as keynote speakers at SETA meetings, as well as act as mentors and chaperons on field trips to 4-year colleges and universities.

Finally, we take our role in student support services very seriously. One of the most visible student support services on campus is the Math Center. Here, students can get help in an open lab environment with instructor assistance. The idea is that students will be able to strengthen their mathematics skills and reinforce their mastery of the mathematical concepts by attending the lab on a regular basis.

What improvements are needed?: We still need to ensure that we are in compliance with AB705 while continuing to deliver quality education. We need to continue the conversations that were started last year centered around validating our work on AB705 and our placement of students into support courses. To ensure quality education, we will need to have the appropriate equipment and supplies for our classes.

As we continue to validate the work that we have done to comply with AB705, we must shift our attention to address the changes that will be needed in our curriculum and placement due to AB1705. Significant work will be needed in the upcoming year to make the necessary changes to comply with the requirements of AB1705.

We will need to continue promoting the changes that are occurring with the math curriculum to the campus. With the addition of support courses, a new math course (MATH 44), and the upcoming changes to curriculum and placement, it is critical to keep the campus community informed regarding these changes and the impact they may have.

We are also looking at better ways to monitor student activity in a computer lab setting. Last year we purchased licenses for

NetOp Visision. This software allows an instructor to monitor student activity on each computer in the computer lab giving the instructor the ability to identify irregularities in student's computer activity. We will need submit for a base budget augmentation to continue the licenses in upcoming years.

Describe any external opportunities or challenges.: Over the past year we have had two major challenges: the COVID pandemic and AB705. In many situations we have put our work on AB705 on hold in order to address the immediate needs created by the COVID pandemic. The unprecedented changes made necessary by the COVID pandemic have demanded much of our time and effort over the past two years. As the demands created by the pandemic lessen, we will shift our attention to updating SLOs and transition back to in-person classes.

Our biggest external challenges come from the State Legislature (AB1705) and the Chancellor's office. As we begin to address AB1705, we await guidance from the Chancellor's office. AB1705 will have the biggest impact on our STEM courses. Specifically, on the pathway to MATH 65.

Overall SLO Achievement: The overwhelming effort put into addressing the needs of students during the pandemic have slowed our work on assessing SLOs. We are using an imbedded question approach in the majority of our courses and the student learning outcomes indicate similar or improved achievement when compared with previous assessments. Additionally, we developed a method of assessing support courses with a student survey.

Changes Based on SLO Achievement: One change that we have implemented was simply in the type of assessments we are using. We are looking for more effective and efficient methods of obtaining the results of these assessments from so many sections taught by a large number of faculty members.

Overall PLO Achievement: We have mapped our individual course outcomes to our program outcomes and our program outcomes to our district objectives and institutional outcomes.

Changes Based on PLO Achievement: No significant changes based upon PLO Achievement.

Outcome cycle evaluation: We have broad, effective participation within the unit. Dialogue Days are well attended as are other division meetings where we work on learning outcomes. We are still seeking to find the best method of assessment that will allow us to find appropriate improvement strategies. However, we are satisfied with the results and process so far.

Action: Kaweah 204A - Remodel

Remodel Kaweah 204A with new desks and wiring.

Leave Blank:

Implementation Timeline: 2022 - 2023 Leave Blank: Leave Blank: Identify related course/program outcomes: Person(s) Responsible (Name and Position): Matthew Bourez Rationale (With supporting data): Currently there is only an extremely narrow area between the front row of desks and the white board. This leaves very little room for the instructor to maneuver as they present lectures and direct activities for their

white board. This leaves very little room for the instructor to maneuver as they present lectures and direct activities for their classes. The new layout will not only allow more room for the instructor to present material, it will also add two additional computers to the lab.

Priority: High Safety Issue: No External Mandate: No Safety/Mandate Explanation:

Resources Description

Equipment - Instructional - Remodel of Kaweah 204A including new wiring (both electrical and network), new desks, and new computers (Active)

Why is this resource required for this action?: This resource will improve the quality of instruction in Kaweah 204A and add additional seats. It will allow more room for the instructor to present material at the front of the room and move more free through the room. It will reorient the instructor station so that the instructor can face the class while at the computer.

Notes (optional): Cost of Request (Nothing will be funded over the amount listed.): 140000 Related Documents: Kaweah 204A Computer Lab Remodel.pdf

Kaweah 204A Cost Estimate.docx

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 1.1 - The District will increase FTES by 1.75% over the three years

District Objective 2.2 - Increase the number of students who transfer to a four-year institution by 10 percent over three years

District Objective 2.3 - By 2021, increase the percentage of students who complete transfer-level English by 15 percentage points and transfer-level math by 10 percentage point with their first year.

District Objective 3.1 - By 2021, increase the placement rates into transfer-level English and transfer-level math for targeted groups that fall below the District Average.

District Objective 3.2 - By 2021, increase the percentage of students in targeted groups who complete transfer-level English (by 10 percentage points) and transfer-level math (by 5 percentage points) within their first year

District Objectives: 2021-2025

District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.

District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.

District Objective 2.2 - Increase the number of students who are transfer-ready by 15% and students who transfer to four-year institutions by 10% from 2021-2025.

District Objective 2.3 - Increase the percentage of students who complete both transfer-level Quantitative Reasoning and English by 10 percentage points by the end of their first year from 2021-2025.

Action: Base Budget Augmentation - Technology Refresh

Submit a Base Budget Augmentation for the math division budget to allow for the refresh/replacement of technology purchased for faculty using COVID funds. In particular iPads and Rhode microphones will require routine replacement on an approximate 5-year rotation

Leave Blank: Implementation Timeline: 2022 - 2023 Leave Blank: Leave Blank: Identify related course/program outcomes: Person(s) Responsible (Name and Position): Matthew Bourez Rationale (With supporting data): In order to continue to offer courses in a variety of formats, particularly HyFlex, technology needs to be maintained. Since the technology that allowed us to effective begin teaching in these modalities were purchased

needs to be maintained. Since the technology that allowed us to effective begin teaching in these modalities were purchased with one-time COVID funds, they are not a part of the regular refresh cycle for school technology. However, this technology is crucial if we are to continue to offer these courses.

Priority: Medium Safety Issue: No External Mandate: No Safety/Mandate Explanation:

Resources Description

Adjustment to Base Budget - Equipment replacement and maintenance. (Active)

Why is this resource required for this action?: iPads and Rhode microphones will require routine replacement on an approximate 5-year rotation

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 4000

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years

District Objective 2.3 - By 2021, increase the percentage of students who complete transfer-level English by 15 percentage points and transfer-level math by 10 percentage point with their first year.

District Objective 3.2 - By 2021, increase the percentage of students in targeted groups who complete transfer-level English (by 10 percentage points) and transfer-level math (by 5 percentage points) within their first year

District Objectives: 2021-2025

District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.

District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.

District Objective 2.3 - Increase the percentage of students who complete both transfer-level Quantitative Reasoning and English by 10 percentage points by the end of their first year from 2021-2025.

District Objective 3.1 - Reduce equity gaps in course success rates across all departments by 40% from 2021-2025.

Action: AB1705 Changes

Examine the changes needed in order to comply with AB1705 and work towards making those changes for a Fall 2024 implementation.

Leave Blank: Implementation Timeline: 2022 - 2023 Leave Blank: Leave Blank: Identify related course/program outcomes: Person(s) Responsible (Name and Position): Matthew Bourez Rationale (With supporting data): AB1705 will likely become law in October 2022. The law will require some key changes to curriculum and placement from what is currently done in the math department. Priority: High Safety Issue: No External Mandate: Yes

Safety/Mandate Explanation: Complying with AB1705 will require changes in curriculum and placement at COS

Link Actions to District Objectives

District Objectives: 2021-2025

District Objective 2.2 - Increase the number of students who are transfer-ready by 15% and students who transfer to four-year institutions by 10% from 2021-2025.

District Objective 2.3 - Increase the percentage of students who complete both transfer-level Quantitative Reasoning and English by 10 percentage points by the end of their first year from 2021-2025.

District Objective 3.1 - Reduce equity gaps in course success rates across all departments by 40% from 2021-2025.

Action: Base Budget Augmentation - NetOp Vision

Submit a base budget augmentation to allow the department to cover the ongoing cost of NetOP Vision software for monitoring student work in a computer lab.

Leave Blank: Implementation Timeline: 2022 - 2023 Leave Blank:

Program Review - Mathematics

Leave Blank:

Identify related course/program outcomes: Person(s) Responsible (Name and Position): Matthew Bourez Rationale (With supporting data): Monitoring students work in a computer lab setting from the instructor station is key to maintaining a productive learning environment Priority: High Safety Issue: No External Mandate: No Safety/Mandate Explanation:

Resources Description

Adjustment to Base Budget - NetOP Vision software for monitoring student work in a computer lab, we have three computer labs, plus two additional labs. (Active)

Why is this resource required for this action?: Math 21 courses require computer labs. The Math Department uses NetOP Vision software to monitor student computers during lab.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 5200

Link Actions to District Objectives

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