Program Name: Math Resource Center
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INTRODUCTION: WHAT IS PROGRAM REVIEW FOR?

The goal of program review is to assess how well our programs are doing. Program review asks us
- to reflect on the state of student learning or support in our disciplines and programs, by discussing
  - efforts to achieve equity across student populations and modes of delivery;
  - results of assessment activities aimed at improving or researching student learning;
  - new challenges or changes to the program.
- to identify resources that we need to change and improve.

Though program review is tied to accreditation, ultimately, we want program review to be meaningful for us. This means we want to use program review to highlight and celebrate what is working, identify what isn't and to figure out what we can do about it. Program review also provides an opportunity to assess how those things work in practice, and work to improve our practices to be able to serve our students even better. It also serves to create cross-campus understanding and dialogue and make more informed decisions in our teaching and programs. Program review is also an opportunity to advocate for change and for resources by showing need and equity issues that we need additional support to be able to address.

1. Description of Program (200-400 words)
- Provide a brief description of the program and how it supports the following:
  - [CSM Mission and Values Statements](#)
  - CSM Statement of Solidarity
  - [CSM's Strategic Priorities](#)
  - [SMCCCD's Strategic Goals](#)
- Identify any factors, including federal, state, or local initiatives, that have impacted the program and the students served:

The Math Resource Center (MRC) is physically located in Building 18, Room 202, and provides additional resources to math students at the College of San Mateo. Our mission is to help CSM students excel in their mathematic and statistics classes through methodical tutoring, academic resources, and compassionate support for all students. The MRC staff consists of a full-time instructional aide with a MS in mathematics, student tutors, and some faculty who do some of their office hours there. Funding for tutors is mainly through departmental funds with occasional work-study funding if available.

To promote equity, the MRC offers tools that students may not be able to afford. Students can come to the MRC and review the textbook while in the center. Students may borrow a calculator for temporary use inside or outside the center, usually no more than a few hours which allows them to bypass purchasing expensive calculators. During the remote tutoring period in Zoom, the MRC calculators were lent to the library for students to check out on a semester basis. The MRC also has basic tools such as staplers, hole punchers, tape, and scratch paper.

To service our highly diverse and extremely busy population of students, we surveyed students during each term asking them when they would like tutoring hours. We then spread our tutoring resources out as much as possible to accommodate the needs of students. We offer evening hours and weekend hours in Zoom. We now offer on campus hours Tuesdays 8:30-3:30pm and Thursdays 8:30-1:30pm, as well as Zoom hours on Mondays 10am-7pm, Tuesdays 11:30am-1pm and 3pm-9:30pm, Wednesdays 10am-9pm, Thursdays 11:30am-5pm, Fridays 11am-5pm, Saturdays 1-5pm, and Sundays 12-3pm. We have provided drop-in service for each term, including Summer term whether it be on campus or in Zoom.

In addition to drop-in tutoring, we can now also offer appointment tutoring in Zoom using Accudemia.

Student tutors are trained in tutoring through a mandatory class (LCTR100) and are required to have a minimum of a B in either Calculus I or Statistics.   Most of our tutors exceed that requirement. Student tutors also receive ongoing training from the Instructional Aide during the tutoring sessions and with regular tutor meetings throughout the semester. Student tutors complete an online Student Interaction Survey after each interaction with a student, where they can discuss their ability to help the student and do a self-reflection on what they can do to improve their service.

With the implementation of AB705, the MRC has seen an increased need for supplemental support in the first level of transfer courses. Students who traditionally would have taken a placement test and possibly ended up in a foundational course, are being put into transfer level courses even after years of absence from mathematics. This has created a greater need to understand that a student utilizing our tutoring services, even if they are in Calculus I or Statistics, may need help with basic mathematics such as fractions and translating words into an equation. Thus, all student tutors must be able to handle tutoring those foundation skills, in addition to the skills generally required of transfer level courses.

The MRC plays an essential role in support of the College Mission and Diversity Statements, to improve student success and promote academic excellence. The Instructional Aide and student tutors create an anti-racist, student-centered learning environment that provides equal

opportunity to all students. The MRC supports the College's Solidarity Statement, by creating a learning environment which values the experiences and perspectives of all. The MRC staff is trained to provide sensitive and high-quality services to BIPOC student groups of diverse racial and ethnic background, national origin, sexual identity, religion and spirituality, age, and gender who historically have been marginalized in higher education.

2. <u>Results of Previous Program Review (200-500 words)</u>
   a) Describe the results of your previous Program Review's action plan and for identified equity gaps.
      a. Previous Goals

In the Program Review for 2018-2019 the following were listed as goals: improved advertisement of the MRC via flyers and connections with other student organizations, as well as brief presentations in front of math classes, as well as advertising the workshops through flyers around campus.

      b. Results Achieved

There was a change in personnel in 2020 that coincided with the pandemic and the move to remote learning/tutoring. It is not clear if there was an increase in advertising the MRC's services. This will continue to be a goal moving forward.

      c. Changes Implemented

Workshops were implemented, but due to the personnel change it is unclear how successful the workshops were, including student attendance. Going forward, we will maintain student attendance information and provide each participant with a satisfaction survey so we can see if there is any need for improvement.

      d. Plans still in progress

The MRC will continue to work on advertising our services. During the remote period, we did email all mathematics instructors to ask them to discuss our center with their students. We asked instructors to put a link to our website schedule in their Canvas courses. The STEM Center advertises our services in their regular fliers emailed to students. With a return to campus, we will return to advertising on paper, using flyers around campus and reconnect to other student organizations to encourage them to share our information with their students. We did post our schedule outside our physical classroom with a QR code students can scan to access our online schedule that has more details.

      e. Any notable or surprising results and outcomes

None.

> b) Explain any curriculum or programmatic changes since last program review
>> a. To specific courses, or to any discipline as a whole
>> b. Includes degree, certificate, or course sequences, program delivery or structure, etc

None.

3. <u>Current Program Review (200-400 words)</u>

Please use the statistics below, which are college-wide, as a reference. Please refer to the Program Review website for individual program data.

College Stats 2020-21	Ethnicity	First Gen	Age	Gender	Total
Headcount (unduplicated)	Latinx 32% White 26% Asian 19% Filipino 7% Multi Races 7% African American 3% Pacific Islander 2% Unknown 4% Native American 0%	48% of our students are the first in their family to go to college.	66% Under 24 yrs. 20% Ages 25-34 15% over 35 yrs.	50% Female 47% Male 2% Unknown	10,910 students
Enrollments (duplicated)	Latinx 32% White 25% Asian 19% Filipino 7% Multi Races 8% African American 3% Pacific Islander 3% Unknown 3% Native American 0%	47% of enrollments were by students who are the first in their family to go to college.	73% Under 24 yrs. 16% Ages 25-34 11% over 35 yrs.	48% Female 50% Male 2% Unknown	32,761 enrollments

> **(a) Student population equity:** Discuss any gaps in student success, persistence, satisfaction, utilization or enrollment across student populations (statistics provided for ethnicity, first-gen, age, gender and total enrollment), or student population served.
> - Findings: What has changed from the previous program review?
> - Analysis: What factors do you feel contribute to these gaps?
> - Resources: If you were granted a resource request, please note what that was and the impact it had.
> - Plans to address opportunity gaps: What has your program done to address these gaps? Include information on:
>> o interventions implemented
>> o any successes in closing gaps
>> o ongoing challenges

Note: If these interventions constituted your discipline-level assessment, please see "(c)" below.

Findings	Analysis	Resources	Plans to Address Opportunity Gaps
1. Generally, the percentage of MRC students matches or exceeds the population percentage. The percentage of students who identify as Asian generally exceed the percentage in the overall population. The percentage of students who identify as Hispanic match the percentage in the overall population. The percentage of students who identify as African-American is regularly lower than the percentage in the overall population but the raw numbers are very small to begin with. The percentage of students who identify as White is regularly well below their percentage in the overall population.	There are many reasons for these percentage variations, such as choice of major. Experience says that students who identify as Asian tend to be STEM majors, so it makes sense that they would spend more time in STEM centers.	Our most recent resource request focused on resources to assist with remote teaching/tutoring. Items like tablets and ipads and document cameras were purchased and these were a definite benefit.	The cause of any gaps cannot be clearly established so it is challenging to set up a plan to address a cause.
2. Students who identify as female have regularly composed about 50% of the student population, but the percentage of students who identify as female who receive services is regularly below 50%, as low as 38.9% in Spring 2019.	Experience shows that students who identify as male are more likely to be STEM majors than students who identify as female. If they are not taking STEM courses such as mathematics, then they would not be spending time in a STEM center. Students who identify as female are more likely to take Statistics which is a one term course if the student passes. They may spend time in a STEM center for that one semester but the next semester when they are no longer taking the course they won't need to spend time in a STEM center.	None.	The cause of any gaps cannot be clearly established so it is challenging to set up a plan to address a cause.

3. The percentage of younger students (35 and younger) who attend our center exceeds their overall population percentage. The percentage of students older than 35 who attend our center (5%) falls below their overall population (15%) The percentage of first generation students generally falls below their percentage in the overall population from year to year.	Students older than 35 are working adults. They likely have a day job and they attend class online or at night. Pre-pandemic hours were generally day hours on campus with some limited evening hours that might not have matched the availability of working adults. There could be many reasons for first generation students to utilize our center below their representation in the overall population, including choice of major.	None.	The pandemic provided us with the opportunity to go online, which allowed us to expand hours to include evenings up to 10pm at times and several hours on the weekends. Regarding first generation students, we do have faculty in the Math Department who are connected with certain student groups such as EOPS, Athletics, etc to create a connection to some first-generation students.

(b) Modes of Delivery equity: Discuss any gaps in student success, persistence, satisfaction, utilization or enrollment, and student population served across different delivery modes. Please comment on in person services/instruction vs hybrid services options/instruction vs completely online services/instruction.

- Changes since last Program Review: What has changed, in terms of gaps, since last program review?
- Analysis of gaps: What factors do you feel contribute to these gaps?
- Plans to address opportunity gaps: What has your program done to address these equity gaps? Include information on:
  - interventions implemented
  - any successes in closing gaps
  - ongoing challenges

Note: If these interventions constituted your discipline-level assessment, please see "(c)" below.

Changes since last Program Review	Analysis of Gaps	Plans to Address Opportunity Gaps
1. The pandemic required that we adjust how we offer services. We went from 100% on campus to 100% remotely in Zoom. In our previous program review, we noted that NetTutor was available to all students, and it still is.	One gap that has become apparent involves lack of technology for students to participate in online tutoring.	Chromebooks have been made available to students through the school and our center's calculators were made available to students via the library. Additionally, software needed for courses, such as Fathom for statistics courses, was adjusted to become available remotely via school computers.

2.		
3.		

(c) Discipline-level and SLO (Student Learning Outcomes) assessment/Student Services and SAO (Service Area Outcomes) assessment: Describe learning or area assessment plans implemented since last Program Review, **including any activities undertaken to address equity or delivery mode gaps**. Your summary should explain:

- SLO/SAO
    - What did the assessment focus on?
    - Was it was a discipline-specific or interdisciplinary (for instruction only)?
    - Why was it prioritized (e.g., equity issue, key disciplinary issue, etc.)?
- Assessment results
    - What was the activity or intervention?
    - What were the outcomes?
- Program improvements implemented
    - What did you learned from it?
    - What changed?

SLOs/SAOs	Assessment Results	Program Improvements Implemented
1. **Based on your overall experience at the CSM Math Resource Center this semester, please indicate the extent to which you have made gains or progress in the following learning objectives identified below:** 1. Succeed in your current math course. 2. Self-Assess your math skills. 3. Demonstrate mastery of the specific skills for which you requested assistance.	Appendix B at the end of this report shows all data from the Spring 2021 PRIE website survey. 1. 18 out of 18 students indicated they made Major or Moderate progress. 2. 18 out of 18 students indicated they made Major or Moderate progress. 3. 18 out of 18 students indicated they made Major or Moderate progress.	Student tutors are put through a thorough 2-step interview process to ensure adequate knowledge base and adequate ability to communicate clearly and respectfully. Student tutors are required to work on practice problems during paid shifts. Student tutors are required to attend regular meetings to discuss issues that arise during tutoring so the issues can be addressed and discussed among all tutors.

2. 4. Understand verbal (word) problems.	4. 17 out of 18 students indicated they made Major or Moderate Progress with one student indicating it did not apply to them..	
5. Understand problems written symbolically.	5. 17 out of 18 students indicated they made Major or Moderate Progress with one student indicating it did not apply to them.	
6. Understand numerical presentations.	6. 17 out of 18 students indicated they made Major or Moderate Progress with one student indicating it did not apply to them.	
3. 7. Understand graphical representations of problems.	7. 17 out of 18 students indicated they made Major or Moderate Progress with one student indicating it did not apply to them.	
8. Understand relationship between two or more presentations of the same problem.	8. 17 out of 18 students indicated they made Major or Moderate Progress with one student indicating it did not apply to them.	
9. Clearly communicate your solutions in writing.	9. 17 out of 18 students indicated they made Major or Moderate Progress with one student indicating it did not apply to them.	
10. Use calculators or software effectively and appropriately.	10. 16 out of 18 students indicated they made Major or Moderate Progress with one student indicating no progress and one student indicating it did not apply to them.	Student tutors are also trained on using online graphing calculators such as DESMOS.

(c) **Challenges and Opportunities:** Describe any **other** particular challenges, opportunities, or other factors that impact the success of your program (e.g., natural or health disasters, assessing whether a degree program is meeting its learning outcomes, developing new degree programs or courses, adapting to a changing student population, keeping a flagging program alive, starting a learning community, etc.).

The pandemic required that we move tutoring services to remote mode in Zoom quickly. This was a challenge but it also presented us with the opportunity to succeed in another mode of delivery. We learned about more programs such as Zoom. Instead of surveying students on paper, we learned how to use Canvas and Google Forms. Offering remote services allowed students who cannot come to campus to still get the help they needed because we had the ability to extend our service hours without being on campus. We moved from offering approximately 40-50 hours of tutor services per week to offering between 60-80 including evenings and weekends. We were also able to have tutor staff meetings remotely which allowed tutors to participate without having to worry about commuting to campus for it. Returning some services on campus allows us to bring back services to students who prefer on campus assistance. Now students have a choice. This choice did not exist before the pandemic challenge.

4. Planning

a) Program goals

Based on your current review of your program's equity gaps, learning assessments and challenges and opportunities, identify specific goals and plans.

Please note that closing equity gaps is a College-wide priority. If there are significant equity gaps in student success, persistence, satisfaction, utilization or enrollment, and student population served in your program, these should be addressed in at least one of your goals.

For each goal, you should include

- A brief description of the issue being addressed (equity gap, etc.)
- What actions you plan to take
- What measurable outcomes you hope to achieve
- A timeline
- Who is responsible
- What support do you anticipate needing in order to achieve your goals and plans, including:
  - Professional development activities
  - Institutional support
  - Collaborations
  - Training
  - Resources

Goal	Actions	Measurable Outcomes	Timeline	Responsible Party	Support Needed
1. Provide students with discrete workshops covering one topic.	Prepare workshop presentation with worksheet for students to complete during workshop. Prepare satisfaction survey to ensure	We hope students develop a better understanding of the material. We can measure this through the satisfaction survey.	AY 21-22	Instructional Aide	We need more discipline specific training for student tutors. There has been a significant drop in qualified applicants.

	the workshop is beneficial to the student.				
2. Have more textbooks available for in center use.	Compare bookstore textbook list with the center's existing inventory.	We hope that once more students are on campus that we will have the appropriate number of textbooks for students to use.	AY 21-22	Instructional Aide	Funds for purchasing any needed textbooks.
3. Have TI-emulators on computers so students may use the calculator on the computer.	The Math Department has put in a Resource Request for TI-emulators.		AY21-22	IT	Funds for purchasing the TI-emulators.
4. Join a learning center association such as the Association of Colleges for Tutoring and Learning Assistance and participate in conferences.	Complete application.	Memberships would allow the Instructional Aide II to interact with others and exchange ideas on how to best service students from all backgrounds and with varying abilities.	AY21-21	Instructional Aide II	Funds for the membership and conferences.

Appendix A: Demographics

	FALL 18			SPRING 19			FALL 19		
	MRC Count	MRC %	Collegewide % for 20-21	MRC Count	MRC %	Collegewide % for 20-21	MRC Count	MRC %	Collegewide % for 20-21
Asian	128	26.5%	19%	136	31.3%	19%	123	27.1%	19%

African American	9	1.9%	3.0%	6	1.4%	3.0%	6	1.3%	3.0%
Filipino	28	5.8%	7%	22	5.1%	7%	32	7.0%	7%
Hispanic	155	32.1%	32.0%	130	30.0%	32.0%	148	32.6%	32.0%
Native American	0	0.0%	0.0%	0	0%	0.0%	0	0%	0.0%
Pacific Islander	13	2.7%	2.0%	7	1.6%	2.0%	14	3.1%	2.0%
White	99	20.5%	26.0%	98	22.6%	26.0%	84	18.5%	26.0%
Multi Racial	40	8.3%	7.0%	28	6.5%	7.0%	34	7.5%	7.0%
Unknown	11	2.3%	4.0%	7	1.6%	4.0%	13	2.9%	4.0%
	483			434			454		
Female	198	48%	50%	169	38.9	50%	186	41.0%	50%
Male	275	56.9%	47%	255	58.8	47%	259	57.0%	47%
Unrecorded	10	2.1%	2%	10	2.3%	2%	9	2.0%	2%
	483			434			454		
24 and younger	380	78.7%	66%	357	82.3%	66%	387	85.2%	66%
25-34	79	16.4%	20%	59	13.6%	20%	54	11.9%	20%
35 and older	24	5.0%	15%	18	4.1%	15%	13	2.9%	15%
	483			434			454		
First Generation									
Yes	204	42.2%	48%	179	41.2%	48%	200	44.1%	48%
No	179	37.1%	Not provided	156	35.9%	Not provided	176	38.8%	Not provided
Unreported	100	20.7%	Not provided	99	22.8%	Not provided	78	17.2%	Not provided
	483			434			454		

APPENDIX B – SLO Outcomes – Math Resource Center

Based on your overall experience at the CSM Math Resource Center this semester, please indicate the extent to which you have made gains or progress in the following learning objectives identified below:

	Major or Moderate	Major progress	Moderate progress	No progress	Does Not Apply
Succeed in your current math course.	18	12	6	0	0
	100%	66.7%	33.3%	0%	0%
Self-Assess your math skills	18	12	6	0	0
	100%	66.7%	33.3%	0%	0%
Demonstrate mastery of the specific skills for which you requested assistance.	18	12	6	0	0
	100%	66.7%	33.3%	0%	0%
Understand verbal problems (word problems).	17	9	8	0	1
	94.4%	50%	44.4%	0%	5.6%
Understand problems written symbolically (algebraic or mathematical symbols).	17	11	6	0	1
	85%	61.1%	33.3%	0%	5.6%
Understand numerical presentation of problems.	17	11	6	0	1
	85%	61.1%	33.3%	0%	5.6%
Understand graphical representation of problems.	17	11	6	0	1
	85%	61.1%	33.3%	0%	5.6%
Understand relationship between two or more presentations of the same problem	17	12	5	0	1
	85%	66.7%	27.8%	0%	5.6%
Clearly communicate your solutions in writing.	17	12	5	0	1
	85%	66.7%	27.8%	0%	5.6%
Use calculators or software effectively and appropriately.	16	9	7	1	1
	88.9%	50.%	38.9%	5.6%	5.6%