

Program Review Summary Page
For Academic & Student Support Programs

Support Program(s) under Review: Math Success Center

Term/Year of Review: Spring 2021

Summary of Program Review:

A. Major Findings

1. Strengths:

The Math Success Center facilitates the tutoring services via many different forms, including individual or group drop-in or scheduled appointments, various workshops, preparation of students to take mastery quizzes, tests, labs, and other forms of assessment. In addition, at the Math Success Center students have access to computers, online homework management systems, mathematics software, online tutoring, and printing. In the light of the recent pandemic, the Math Success Center has shown a great flexibility in adapting to the new online tutoring environment within three short days in order to meet student's needs.

2. Areas for Improvement:

New tracking software and hardware needs to be researched and implemented at the Math Success Center in order to produce valid reports on student's usage, success, retention, budget and planning needs. The mathematics faculty expressed a great interest in the expansion of the Mastery Quizzes model in many math courses. Further research, training, and support for implementation is needed to address this need. Develop a plan to better utilize the skills of the math faculty by integrating the math instructors as a mastery level tutors at the Math Success Center.

3. Projected Growth, Stability, or Viability:

The Math Success Center plays a vital role in supporting students in their mathematics classes. The data in Section I C shows that students that attend the Math Success Center perform significantly better in their math classes. This applies to both in-person and online services. In addition, the Math Success Center will continue to support the math department in implementation of AB-705. The growth in co-requisite courses to support AB 705 implementation will require additional support from the Math Success Center.

B. Program’s Support of Institutional Mission and Goals

1. Description of Alignment between Program and Institutional Mission:

The Math Success Center is committed and acts as a necessary irreplaceable tool in order to improve student achievement in the mathematics courses. We offer our tutoring services to all Napa Valley College students ranging from the basic skills to the transfer level courses in addition to the career-technical education and training.

2. Assessment of Program’s Recent Contributions to Institutional Mission:

The assessment of students using the Math Success Center about their confidence level with the learned material revealed that the vast majority of students (90%) had indicated that they felt more confident with the mathematics material after using the services of the Math Success Center. Data is showing positive results. Students feel more confident about their mathematics skills and perform better on the mathematics assessments in their classes. In addition, students get more in-depth understanding of the concepts and are able to analyze the results on their own. As a result, learners felt more confident and independent in their studies and gain necessary skills needed to succeed in the college level mathematics course. To summarize, the Math Success Center provides the necessary tutoring assistance in order to improve student achievement and help students achieve their goals: career training, transfer, or certificate.

3. Recent Program Activities Promoting the Goals of the Institutional Strategic Plan and Other Institutional Plans/Initiatives:

The Math Success Center provides the necessary support with the implementation of AB-705 legislature in the mathematics courses, including the Mastery Quizzes, various workshops, one-on-one or group tutoring sessions, access to the mathematics software, and many more. These efforts serve as an impressive aid in order to engage and increase student achievement and completion of educational and job training goals.

C. New Objectives/Goals:

Increase NVC student achievement and completion of educational and job training goals;
Engage NVC students and assist in their progress towards educational and job training goals;
Strengthen the connection between math department and the Math Success Center

I. PROGRAM DATA

A. Math Success Center Usage

	2017-2018	2018-2019	2019-2020*	Change over 3-Year Period
Headcount	--	1,011	789	-22.0%
Number of Contacts/Visits	7,732	7,957	5,561	-30.1%
Total Minutes Billed	--	748,144	513,037	-31.4%
Average Number of Visits per Student	--	7.9	7.0	-10.4%
Average Number of Minutes per Visit	--	94.0	92.3	-1.9%

Source: Student Contact Data provided by the MATH Success Center, 2017-2018 to 2019-2020

RPIE Analysis: The number of students (headcount) served by the Math Success Center decreased by 22.0% over the past two years, while the number of total contacts made to the Math Success Center decreased by 30.1% over the same period. The total number of minutes billed in person decreased by 31.4%.

**The figures reported in the table above pertain to in-person visits to the Math Success Center. The decrease in student access and visits to the Math Success Center in 2019-2020 (relative to 2018-2019) was a result of the shift to the remote environment due to COVID-19 in spring 2020.*

In 2018-2019 and 2019-2020, students who used the Math Success Center visited it an average of 7-8 times. The sessions averaged 92-94 minutes per visit.

Program Reflection:

Per above data, the number of contacts/visits increased from 2017-2018 to 2018-2019 academic year. This increase can be explained by the incorporation of Mastery Quizzes into Math 106 and Math 108 sections where students have to take these quizzes at the Math Success Center and have access to quiz preparation worksheets trained student tutors and the Instructional Support Specialists; integration of Math Quizzes for Chemistry 110 students who have access to quiz preparation worksheets, trained student tutors and the Instructional Support Specialists; increase in advertisement of the Math Success Center to mathematics faculty, counselors, student life offices, and other units on campus; introduction and implementation of various workshops offered to mathematics and Chemistry 110 students; integration of Math Plus program offering a slow-paced workshops to the Basic Skills classes; hiring a trained DSPS mathematics Instructional Support Specialist; moving one-on-one appointments sign-ups to the website.

Even though there is an overall decrease of the NVC Headcount and NVC Enrollment, the Math Success Center Headcount was going up.

The decrease in the academic year 2019-2020 can solely be explained by the pandemic. Along with all courses, Math Success Center rapidly transitioned to online services via Canvas. The data above reflects in-person visits which paused with the pandemic in Spring 2020. Within three days 1400 invitations to join the Math Success Center Canvas shell were sent and over 1300 of those invitations were accepted by the students enrolled in the math classes. MSC continues to have a robust online presence via Canvas.

B. Demographics of Students Served by Program

	2017-2018	2018-2019	2019-2020	2-Year Proportion of the Program	2-Year Proportion at the Institutional Level
Number of Students	--	1,011	789	1,432	12,003
Gender					
Male	--	44.4%	45.2%	44.2%	43.6%
Female	--	55.6%	54.8%	55.8%	56.4%
Race/Ethnicity					
Asian	--	3.2%	2.8%	3.1%	3.3%
African American/Black	--	7.7%	4.2%	6.3%	5.1%
Filipino	--	8.4%	10.0%	9.4%	8.2%

Hispanic	--	49.0%	53.8%	50.1%	42.6%
Multiple Race/Other	--	8.3%	8.6%	8.7%	9.8%
Native American	--	0.2%	0.3%	0.2%	0.3%
Pacific Islander	--	--	0.4%	0.2%	0.5%
White	--	23.2%	19.9%	21.9%	30.2%
Age					
19 or less	--	43.7%	52.7%	47.9%	38.1%
20 to 24	--	32.8%	27.6%	30.1%	32.6%
25 to 29	--	9.4%	10.5%	9.7%	12.2%
30 to 34	--	5.6%	3.7%	4.9%	7.8%
35 to 39	--	2.7%	2.5%	2.8%	4.3%
40 to 54	--	4.1%	2.8%	3.6%	3.6%
55 and older	--	1.7%	0.1%	1.1%	1.4%
First Generation	--	47.7%	49.0%	48.2%	52.7%
<i>Source: NVC Library Student Checkout Data, NVC student records</i>					

RPIE Analysis: This section describes the demographics among NVC students who accessed the Math Success Center Program over the past two years with their student identification number associated with their usage. The following demographic groups accounted for a majority or plurality of the student population that accessed the Math Success Center Program during that period:

- Females (55.8%)
- Hispanics (50.1%)
- Students 19 or less (47.9%)
- First Generation (48.2%; the remaining 51.8% includes students that were not first generation as well as students without information reported)

The following demographic groups claimed a significantly lower proportion of the population share among Writing Success Center users than they did among the population of NVC credit students over the past two years:

- Whites (-8.3%)
- Students 25 to 29 (-2.5%)
- Students 30 to 34 (-2.9%)
- Students 35-39 (-1.5%)

*Hispanics and students 19 or less claimed a significantly higher proportion of the population share among Writing Success Centers users compared to the population of NVC credit students. (Statistically significant differences are denoted in **bold italics** in the table above.)*

Program Reflection:

Per above data, most of the demographics data is consistent with the Programs at the Institutional level at most entries. The Napa Valley College is the Hispanic Serving Institution and the Math Success Center (MSC) demographics data positively reflects the continuous efforts of the MSC management and staff to close the equity gap and address all demographics groups. Some of the decreased numbers can be explained by the changes in demographic enrollment into the STEM programs.

In addition, the Math Success Center plays an important role with the AB-705 implementation. Various workshops, mastery quizzes, tutoring help, and many other services are in place to assist the Mathematics department with the AB-705 implementation. The hope is that the collaborative efforts of the Math Success Center and Math department can decrease equity gaps.

C. Two-Year Performance Rates among Students who Visited the Math Success Center versus Those That Did Not

	Math Success Center Students (N=1,752)	Non-Math Success Center Students (N=3,095)
Retention Rate	87.7%	85.3%
Successful Course Completion Rate	70.4%	66.9%

Source: NVC Enrollment Records; Student Contact Data provided by the MATH Success Center, 2017-2018 to 2019-2020

*Note: Statistically significant lower rates are denoted in **bold italics** in the table above.*

RPIE Analysis: The table above reports the retention rates and successful course completion rates among two populations of students: those that visited the Math Success Center and those who did not access the Math Success Center. The analysis focuses on the retention rate and successful course completion rate among students enrolled in Mathematics course(s) in 2018-2019 and 2019-2020. A comparison was conducted on the rates claimed by students who used the Math Success Center and those that did not during that period.

Over the past two years, the retention rate among students that visited the Math Success Center was significantly higher than the rate among students that did not visit the Math Success Center.

Over the past two years, the successful course completion rate among students that visited the Math Success Center was significantly higher than the rate among students that did not visit the Math Success Center.

Over the past three years, the difference between retention and successful course completion among students that visited the Math Success center (17.3%) was lower than the difference among students that did not visit the Math Success Center (18.4%). This figure represents the proportion of non-passing grades assigned to students (i.e., grades of D, F, I, NP). (The difference is not statistically significant.)

Program Reflection:

Per above data, students that attend the Math Success Center show a impressive increase in retention and successful completion rates in comparison to the students that do not attend the Math Success Center. This provides the concrete evidence that all the services at the Math Success Center (MSC) play a very important role in student’s academic achievement, retention, and success, especially when it comes to such a rigorous branch of sciences as mathematics. MSC is a vital resource to students in their math classes, it provides tutoring help, test preparation help, homework guidance, access to mathematics books and software, access to the computers and the printer, a quiet place to study on your own or as a group, and many more.

II. CURRICULUM

This section does not apply to the Math Success Center.

III. LEARNING OUTCOMES ASSESSMENT

A. Status of Learning Outcomes Assessment

Learning Outcomes Assessment at the Course Level

	Number of Courses with Outcomes Assessed		Proportion of Courses with Outcomes Assessed	
Number of Courses	Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
We do not offer courses at the Math Success Center. Student's attendance is purely on the volunteer basis				

Learning Outcomes Assessment at the Program Level

	Number of Outcomes Assessed		Proportion of Outcomes Assessed	
Number of Outcomes*	Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
	1	1	100%	100%

*Include all areas of study, degrees, and certificates associated with the program in the table.

Program Reflection:

Assessment Year: 2020-2021
Criterion Met: Yes
 After using the services of the Math Success Center, I feel more confident with the material.
 Date: 12/09/2020
 Assessment result: 70% strongly agree; 20% agree; 10% neither agree nor disagree.
 Criterion met: Yes.
 Vast majority of students (90%) had indicated that they felt more confident with the mathematics material after using the services of the Math Success Center. Data is showing positive results. Students feel more confident about their mathematics skills and perform better on the mathematics assessments in their classes. In addition, students get more in-depth understanding of the concepts and are able to analyze the results on

their own. As a result, learners felt more confident and independent in their studies and gain necessary skills needed to succeed in the college level mathematics course.

Assessment Year: 2018-2019

Criterion Met: Requires additional assessment

20% of students reported that they utilize the math center. Of the students who didn't use the center, 14% cited that they didn't know about it, 43% cited that they didn't have time, and 29% cited that they didn't need to. 26% of students were in favor of mandatory hours, 36% were unsure, and 37% were against it.
(12/28/2018)

B. Summary of Learning Outcomes Assessment Findings and Actions

Students show more confidence in their mathematics skills when utilizing the Math Success Center. In addition, students gain necessary skills and study habits to successfully progress through their college-level mathematics courses and become independent learners. This shows that Math Success Center plays a significant vital role in math student's lives, positively affects their performance in mathematics classes, promotes intellectual independence and deeper understanding of the mathematics concepts.

Program Reflection:

Math Success Center will continue to assess the Program Outcomes per appropriate assessment schedule.

IV. PROGRAM PLAN

Based on the information included in this document, the program is described as being in a state of:

- Viability
- Stability
- Growth**

*Please select ONE of the above.

This evaluation of the state of the program is supported by the following parts of this report:

The Math Success Center plays a vital role in supporting students in their mathematics classes. The data in Section I C shows that students who attend the Math Success Center perform significantly better in their math classes. This applies to both in-person and online services. In addition, the Math Success Center will continue to support the math department in implementation of the AB-705.

Complete the table below to outline a three-year plan for the program, within the context of the current state of the program.

Program: _____ **The Math Success Center** _____
 Plan Years: _____ **2021-2024** _____

Strategic Initiatives Emerging from Program Review	Relevant Section(s) of Report	Implementation Timeline: Activity/Activities & Date(s)	Measure(s) of Progress or Effectiveness
Increase NVC student achievement and completion of educational and job training goals	I C, IIIA	Mastery Quizzes. Continue the current Mastery Quizzes for math 106 and math 108; and expand the Mastery Quizzes model to other mathematics courses. In addition, develop employee trainings, study guides, and support workshops	Regular SLO assessment in classes that utilize the Mastery Quizzes.
Engage NVC students and assist in their progress towards educational and job training goals	IA, IC, IIIA	Research and purchase new software and hardware that integrates both in-person and online tutoring services for mathematics and science courses.	Reports tracking student's attendance, duration of the usage of the tutoring services, success of the

			services offered, and for budget and planning purposes
Strengthen the connection between math department and the Math Success Center	IC, IIIA	Develop a plan to better utilize the professional skills of the math faculty. Math faculty can serve as master level tutors of all levels of community college mathematics, hold workshops, facilitate individual and group tutoring sessions.	Plan and develop

Describe the current state of program resources relative to the plan outlined above. (Resources include: personnel, technology, equipment, facilities, operating budget, training, and library/learning materials.) Identify any anticipated resource needs (beyond the current levels) necessary to implement the plan outlined above.

Note: Resources to support program plans are allocated through the annual planning and budget process (not the program review process). The information included in this report will be used as a starting point, to inform the development of plans and resource requests submitted by the program over the next three years.

Description of Current Program Resources Relative to Plan:

In a light of a great interest by the mathematics department in the expansion of the Mastery quizzes, the Math Success Center is in great need in bigger facilities and additional rooms that can be used for the Mastery Quizzes facilitation and private or group tutoring sessions.

In addition, during the peak in-person times, the Math Success Center is completely full and does not have enough room to assist every student that comes in. The Math Success Center needs bigger facilities, more floor space, and more employees.

With such great volume of students that attend the Math Success Center comes a need for an advance tracking software that can provide organized reports on the student’s usage of the tutoring services, success, demographics, and for budget and planning reasons.

Currently, the Math Success Center staff consists of student tutors, Instructional Support Specialists (ISS), and a DSPS ISS. In order to effectively manage staff and facilities, the Math Success Center will greatly benefit from having a manager or supervisor at the Math Success Center. This person will work at the Math Success Center, oversee daily operations, create and manage schedules of the student tutors and ISS, be in charge of the Mastery quizzes facilitation and one-on-one appointment bookings.

Mathematics courses are incredibly rigorous in nature and students with disabilities need the tutoring support in order to successfully progress through their mathematics studies. The Math Success Center needs to have a permanent DSPS mathematics tutors that has a special training in order to provide tutoring services to the students in the DSPS program.



V. PROGRAM HIGHLIGHTS

A. Recent Improvements

Due to changes in educational legislation with respect to AB-705, the Math Success Center provided the necessary support to the mathematics classes to assure the smooth transition within changes outlined in AB-705. Particularly, the implementation of the Mastery quizzes in College Algebra, Trigonometry; Chemistry math quizzes; various workshops targeted for both basic skills and transfer-level math classes; ability to provide and facilitate tutoring services to students that are in DSPS program by the trained DSPS mathematics Instructional Support specialist; opportunity for slow-paced basic skills mathematics tutoring like Math Plus.

The total headcount at the Math Success Center is increasing due to the continuous efforts of the Math Success Center staff in the form of outreach to students and faculty, campus fliers, classroom visits, videos and PDF presentations.

In addition, due to the global pandemic, the Math Success Center was able to move all of the tutoring services online and continue to provide the tremendous support to both math faculty and math students.

B. Effective Practices

The Math Success Center offers tutoring support to the mathematics students in many different forms: tutoring services provided individually on a drop-in basis or scheduled thirty-minute one-on-one appointments, group tutoring, access to the computers, mathematics software, printing, additional practice exercises for the homework, labs or projects, room for study groups and Supplemental Instruction sessions, ability to attend workshops presented by the Math Success Center coordinator, facilities to perform and assess the Mastery Quizzes.

Feedback and Follow-up Form

Completed by Supervising Administrator:

**Robert J. Van Der Velde,
Senior Dean, Arts & Sciences**

Date:

4/19/2021

Strengths and successes of the program, as evidenced by analysis of data, outcomes assessment, and curriculum:

The Math Success Center is demonstrably an important ingredient to student success in Mathematics. The staff and student tutors have worked hard to establish a continued presence online via Canvas, continuing to adapt to changing situations.

Areas of concern, if any:

Continued recruitment of student tutors is an ongoing concern, as is the continuing problem with aging computer equipment. Pre-pandemic, the MSC was at full capacity and is expected to return to that level once on-campus instruction is fully returned, so space will once again become an important issue.

Recommendations for improvement:

**The Math Success Center would be more appropriately directed by a manager-level administrator who can more directly supervise instructional support specialists and student staff.
More outreach to the campus community would help lift the profile of the MSC.**

Anticipated Resource Needs:

Resource Type	Description of Need (Initial, Including Justification and Direct Linkage to State of the Program)
Personnel: Faculty	
Personnel: Classified	
Personnel: Admin/Confidential	As discussed above and in successive unit plans, the Math Success Center should be directed by a manager-level administrator who can more directly oversee the work of the instructional support specialists and student staff.
Instructional Equipment	
Instructional Technology	Math Success Center computers are woefully inadequate. New computers have been on refresh plans for several rounds but have not been updated; post-pandemic strategies include need for headset microphones and cameras to support remote tutoring.
Facilities	At pre-pandemic peak times, there are no seats left in the Math Success Center, and the adjoining room for mastery quizzes is inadequate to support the expansion of this program as contemplated by the plan above.

Operating Budget	The Math Success Center lacks its own operating budget, relying on the Math Department budget. Moreover, support for tutoring comes from a variety of sources, and should be a separate central budget center as recommended in successive unit plans.
Professional Development/ Training	
Library & Learning Materials	