MATHEMATICS

Summary of Program Review:

A. Major Findings

1. Strengths:

The introduction of new courses (MATH 80, 81, 87, 88) aligns with AB 1705, improving access to transfer-level mathematics. The Mathematics AS-T degree has been updated to support streamlined transfers to UC and CSU institutions. Additionally, the development of the SMS Scholars program supports students in corequisite classes with embedded tutors, reinforcing equitable student outcomes.

The Mathematics AS-T degree has been updated to align with the Cal-GETC, ensuring our program supports streamlined transfers to UC and CSU institutions.

2. Areas for Improvement:

Retention and successful course completion rates remain below institutional levels, emphasizing the need for continued support and intervention strategies. We will utilize disaggregated data to understand and address equity gaps, implementing best practices to enhance student success.

3. Projected Program Growth, Stability, or Viability:

The Mathematics Program is poised for stability with strategic curriculum adjustments, enhanced student support, and initiatives like mastery quizzes in Calculus I to prepare students for Calculus II. This aligns with Napa Valley College's mission and strategic plan to increase transfer rates and support disproportionately impacted populations.

B. Program's Support of Institutional Mission and Goals

1. Description of Alignment between Program and Institutional Mission:

The Mathematics Program supports Napa Valley College's mission by fostering academic excellence and equity. Through initiatives like the SMS Scholars program and mastery quizzes, the program provides pathways to transfer-level education, supporting disproportionately impacted populations and embodying the college's values of integrity, equity-mindedness, and social justice.

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

Creation of multiple corequisite courses. Development of the SMS Scholars program to support students in corequisite classes, with embedded tutors enhancing learning outcomes. Use of mastery quizzes in Calculus I to prepare students for success in Calculus II. Pilot program offering students ALEKS software for individualized learning plans, highlighting the need for district support to subsidize the cost.

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

Archival of courses MATH 85, 91, 93, and 95 to comply with AB 705 and AB 1705, ensuring effective pathways for completing transfer-level math. Implementation of data-informed enrollment planning to optimize course offerings and accommodate diverse learning modalities (in-person, hybrid, and online).

C. New Objectives/Goals:

Increase retention and successful course completion rates through targeted interventions and support programs, in alignment with the Educational Master Plan. Enhance the Mathematics Success Center's resources and faculty engagement to support student learning and achievement. Address equity gaps by examining disaggregated data and implementing best practices to improve student outcomes. Secure district support for ALEKS software to assist students financially, ensuring equitable access to necessary educational resources.

D. Description of Process Used to Ensure “Inclusive Program Review”

The program review process involved extensive stakeholder engagement, including faculty, students, and administrators, ensuring diverse perspectives shaped our curriculum and strategic initiatives. This approach aligns with the Educational Master Plan’s emphasis on shared governance and inclusive decision-making.

This report covers the following program, degrees, certificates, and courses (based on the Taxonomy of Programs on file with the Office of Academic Affairs):

Program	**Mathematics**
Degrees/ Certificates	Mathematics: AS-T
Courses	MATH 80
	MATH 81
	MATH 83
	MATH 85
	MATH 86
	MATH 87
	MATH 88
	MATH 91
	MATH 93
	MATH 95
	MATH 106
	MATH 108
	MATH 115
	MATH 120
	MATH 121
	MATH 130
	MATH 220
	MATH 221
	MATH 222
	MATH 232
	MATH 235

Taxonomy of Programs, February 2025

I. PROGRAM DATA

A. Demand

1. Headcount and Enrollment

	2021-2022	2022-2023	2023-2024	Change over 3-Year Period
Headcount				
Within the Program	**1,893**	**1,666**	**1,752**	**-7.4%**
Across the Institution	**6,653**	**6,161**	**6,473**	**-2.7%**
MATH-83	177	186	148	-16.4%
MATH-85	89	--	--	-100%
MATH-86	78	170	152	94.9%
MATH-91	8	--	--	-100%
MATH-93	68	--	--	-100%
MATH-95	164	40	--	-100%
MATH-106	342	479	432	26.3%
MATH-108	136	154	159	16.9%
MATH-115	27	34	35	29.6%
MATH-120	274	232	316	15.3%
MATH-121	184	146	156	-15.2%
MATH-130	12	25	19	58.3%
MATH-220	58	53	48	-17.2%
MATH-221	73	51	56	-23.3%
MATH-222	35	34	34	-2.9%
MATH-232	988	920	976	-1.2%
MATH-235	--	--	33	N/A
Within the Program	**2,713**	**2,524**	**2,564**	**-5.5%**
Across the Institution	**25,216**	**23,488**	**24,913**	**-1.2%**
Source: SQL Queries for Fall 2024 Program Review				

RPIE Analysis: The number of students enrolled (headcount) in the Mathematics Program decreased by 7.4% over the past three years, while headcount across the institution decreased by 2.7%. Enrollment within the Mathematics Program decreased by 5.5%, while enrollment across the institution decreased by 1.2% over the same period.

Enrollment in the following courses changed by more than 10% (±10%) between 2021-2022 and 2023-2024:

Courses with enrollment increases:

- *MATH-86 (94.9%)*
- *MATH-130 (28.3%)*
- *MATH-115 (29.6%)*
- *MATH-106 (26.3%)*
- *MATH-108 (16.9%)*
- *MATH-120 (15.3%)*

Courses with enrollment decreases:

- *MATH-85 (-100%)*
- *MATH-91 (-100%)*
- *MATH-93 (-100%)*
- *MATH-95 (-100%)*
- *MATH-221 (-23.3%)*
- *MATH-220 (-17.2%)*
- *MATH-83 (-16.4%)*
- *MATH-121 (-15.2%)*

The remaining courses reported in the Taxonomy of Programs for Mathematics (MATH-80, MATH-81, MATH-87, and MATH-88) did not have any enrollments between 2021-2022 and 2023-2024.

Program Reflection:

The Mathematics Department has made significant strides in curriculum alignment and student support, reflecting both state mandates and institutional priorities. Our focus on compliance with AB 1705 and Cal-GETC ensures that we provide equitable, high-quality educational opportunities. In particular, the introduction of new courses such as MATH 80, 81, 87, and 88 is a direct response to the legislative shift mandated by AB 1705, which required us to cease offering courses below the transfer level. This strategic adjustment supports our goal of increasing student access to transfer-level mathematics, aligning with Napa Valley College's Educational Master Plan to enhance transfer rates and equitable student outcomes.

Despite challenges in retention and completion rates, ongoing efforts to enhance support services and faculty involvement remain critical to our continued success. We are committed to implementing data-informed enrollment planning and optimizing our course offerings across various modalities, ensuring that all students, particularly those from disproportionately impacted populations, have the resources and opportunities needed to achieve their academic and professional goals.

2. Average Class Size

	2021-2022		2022-2023		2023-2024		Three-Year	
	Sections	**Average Size**	**Sections**	**Average Size**	**Sections**	**Average Size**	**Average Section Size**	**Trend**
MATH-83	8	22.1	7	26.6	6	24.7	24.3	11.8%
MATH-85	4	22.3	--	--	--	--	22.3	-100%
MATH-86	4	19.5	6	28.3	6	25.3	25.0	29.7%
MATH-91	1	8.0	--	--	--	--	8.0	-100%
MATH-93	3	22.7	--	--	--	--	22.7	-100%
MATH-95	6	27.2	1	40.0	--	--	29.1	-100%
MATH-106	14	24.4	16	29.9	17	25.4	26.7	4.1%
MATH-108	5	27.2	6	25.7	6	26.5	26.4	-2.6%
MATH-115	1	27.0	1	34.0	1	35.0	32.0	29.6%
MATH-120	10	27.4	9	25.8	10	31.6	28.3	15.3%
MATH-121	8	23.0	7	20.9	5	31.2	24.3	35.7%
MATH-130	1	12.0	1	25.0	1	19.0	18.7	58.3%
MATH-220	2	29.0	2	26.5	2	24.0	26.5	-17.2%
MATH-221	3	24.3	2	25.5	2	28.0	25.7	15.2%
MATH-222	3	11.7	2	17.0	2	17.0	14.7	45.3%
MATH-232	37	26.7	33	27.9	34	28.7	27.7	7.5%
MATH-235	--	--	--	--	1	33.0	33.0	N/A
Program Average*	**110**	**24.7**	**93**	**27.1**	**93**	**27.6**	**26.4**	**11.7%**
Institutional Average*	**1,048**	**24.1**	**954**	**24.6**	**986**	**25.3**	**24.6**	**5.0%**

Sources: SQL Queries for Fall 2024 Program Review for enrollment data, Enrollment Management Division Reports and Concurrent Courses Reports for course-section data.

Average Section Size across the three-year period for courses, and both within academic years and across the three-year period for the program and institutional levels is calculated as:

$$\frac{\text{Total \# Enrollments}}{\text{Total \# Sections}}.$$

It is not the average of the three annual averages.

RPIE Analysis: Over the past three years, the Mathematics Program has claimed an average of 26.4 students per section. The average class size in the program is higher than the average class size of 24.6 students per section across the institution during this period. Average class size in the program increased by 11.7% between 2021-2022 and 2023-2024. Average class size at the institutional level increased by 5.0% over the same period.

Average class size in the following courses changed by more than 10% (±10%) between 2021-2022 and 2023-2024:

Courses with increases in average class size:

- *MATH-130 (58.3%)*
- *MATH-222 (45.3%)*
- *MATH-121 (35.7%)*
- *MATH-86 (29.7%)*
- *MATH-115 (29.6%)*
- *MATH-120 (15.3%)*
- *MATH-221 (15.2%)*
- *MATH-83 (11.8%)*

Courses with decreases in average class size:

- *MATH-85 (-100%)*
- *MATH-91 (-100%)*
- *MATH-93 (-100%)*
- *MATH-95 (-100%)*
- *MATH-220 (-17.2%)*

Program Reflection:

The observed decreases in average class size for courses such as MATH-85, MATH-91, MATH-93, and MATH-95, each showing a 100% reduction, are directly attributable to these courses no longer being offered. These courses were below transfer level and, in compliance with AB 705 and AB 1705, were removed to better align our curriculum with the emphasis on transfer-level education. This strategic shift supports the Educational Master Plan's goals to increase the number of students completing transfer-level math, particularly among disproportionately impacted populations.

Conversely, the increases in average class size for courses like MATH-130, MATH-222, MATH-121, and others highlight the department's successful realignment towards transfer-level offerings. This shift ensures that we continue to meet institutional priorities by providing students with the necessary preparation to transfer to four-year institutions, aligning with the strategic enrollment management goals of increasing degree program enrollment with a transfer focus.

Overall, the Mathematics Department's efforts to adapt to legislative mandates while enhancing educational opportunities reflect our commitment to supporting equitable student outcomes and fostering pathways to academic success. By focusing on transfer-level courses, we aim to improve student access, persistence, and completion, aligning with Napa Valley College's mission and strategic priorities.

3. Fill Rate and Productivity

Fill Rate			
	Enrollments	**Capacity**	**Fill Rate**
2021-2022	2,713	3,630	74.7%
2022-2023	2,524	3,125	80.8%
2023-2024	2,564	3,115	82.3%
Three-Year Program Total	**7,801**	**9,870**	**79.0%**
Productivity			
	FTES	**FTEF**	**Productivity**
2021-2022	315.8	28.1	11.2
2022-2023	299.3	22.9	13.1
2023-2024	277.1	22.4	12.4
Three-Year Program Total	**892.2**	**73.4**	**12.2**
Sources: SQL Queries for Fall 2024 Program Review; SQL Server Reporting Services – Term to Term Enrollment FTES Load Comparison Report (by Credit Course)			

RPIE Analysis: Between 2021-2022 and 2023-2024, the fill rate within the Mathematics Program ranged from 74.7% to 82.3%. [The fill rate has not been calculated at the institutional level.] The program-level rate across the three-year period was 79.0%. Between 2021-2022 and 2022-2023, both enrollment and capacity decreased, resulting in an increase in fill rate (due to a higher rate of decrease in capacity). Between 2022-2023 and 2023-2024, enrollment increased and capacity decreased, resulting in an increase in fill rate.

Productivity within the Mathematics Program ranged from 11.2 to 13.1. [Productivity has not been calculated at the institutional level.] The three-year productivity of 12.2 is lower than the target level of 17.5, which reflects 1 FTEF (full-time equivalent faculty) accounting for 17.5 FTES (full-time equivalent students) across the academic year. (This target reflects 525 weekly student contact hours for one full-time student across the academic year.)

Program Reflection:

The Mathematics Program at Napa Valley College has experienced fluctuating fill rates and productivity levels over the past three years, reflecting both the challenges and opportunities presented by recent legislative changes and institutional priorities. The fill rate within the program ranged from 74.7% to 82.3%, with a three-year average of 79.0%. This increase in fill rate, particularly between 2021-2022 and 2023-2024, is attributed to strategic adjustments in course offerings and capacity management in response to AB 705 and AB 1705.

With the removal of courses below the transfer level, we have focused on optimizing our transfer-level course offerings. This strategic alignment supports the goals of the Napa Valley College Educational Master Plan, which emphasizes increasing the completion of transfer-level math courses, particularly among disproportionately impacted populations. By concentrating on courses with higher demand and relevance, we have effectively utilized our capacity, thereby increasing the fill rate.

However, despite these strategic efforts, the program's productivity, measured as a ratio of full-time equivalent faculty (FTEF) to full-time equivalent students (FTES), remains below the target level. The three-year productivity average of 12.2, compared to the target of 17.5, highlights an area for improvement. This gap underscores the need for continued focus on enhancing enrollment and retention strategies, as well as exploring innovative approaches to increase student engagement and success.

Aligning with the 2023–26 Strategic Enrollment Management (SEM) Goals, the Mathematics Program is committed to increasing dual enrollment, supporting student persistence, and improving access for special populations. By enhancing support services and integrating data-informed enrollment planning, we aim to improve productivity and ensure our program aligns with both institutional goals and the broader educational landscape.

Through these continued efforts, the Mathematics Department is dedicated to providing high-quality, equitable educational opportunities that support student success and align with Napa Valley College's mission and strategic priorities.

4. Labor Market Demand

This section does not apply to the Mathematics Program, as it is not within the Career Technical Education Division.

B. Momentum

1. Retention and Successful Course Completion Rates

	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
Course	Rate	Course Rate vs. Program Rate		Rate	Course Rate vs. Program Rate	
		Above	Below		Above	Below
MATH-83	80.4%		***X***	43.5%		***X***
MATH-85	91.0%	X		49.4%		***X***
MATH-86	84.4%		X	56.4%		X
MATH-91	*			*		
MATH-93	94.0%	***X***		64.2%	X	
MATH-95	91.1%	***X***		61.4%	X	
MATH-106	85.4%	--		57.8%		--
MATH-108	86.5%	X		65.1%	***X***	
MATH-115	83.3%		X	67.7%	***X***	
MATH-120	83.7%		X	63.4%	***X***	
MATH-121	89.9%	***X***		74.2%	***X***	
MATH-130	92.9%	X		87.5%	***X***	
MATH-220	80.7%		X	62.0%	X	
MATH-221	92.7%	***X***		70.2%	***X***	
MATH-222	95.9%	***X***		77.6%	***X***	
MATH-232	83.9%		X	54.5%		***X***
MATH-235	97.0%	***X***		90.9%	***X***	
Program Level	**85.2%**			**58.8%**		
Institutional Level	90.9%			73.2%		

Source: SQL Queries for Fall 2024 Program Review
-- Indicates a value that is within 1% of the program-level rate.
Bold italics denote a statistically significant difference between the course-level rate and the program-level rate.
Bold denotes a statistically significant difference between the program-level rate and the institutional rate. The lower of the two rates is highlighted in bold.
*Dat are suppressed due to low N (N < 10).
Note: Grades of EW (Excused Withdrawal) for spring 2020 and beyond are not included in the calculations of the three-year retention and successful course completion rates reported above. This approach reflects the standard recommended research practice of not including EWs in either the numerator or the denominator for these rates.

RPIE Analysis: Over the past three years, the retention rate for the Mathematics Program was significantly lower than the retention rate at the institutional level. The retention rate for MATH-83 was significantly lower than the program-level rate. (Courses with retention rates significantly higher than the program-level rate are noted in the table above.) The retention rate for the Mathematics Program falls within the first quartile (Q1) among program-level retention rates (across 60 instructional programs, over the past three years). The retention rate for Mathematics is among the lowest 25% of retention rates among NVC programs.

Over the past three years, the successful course completion rate for the Mathematics Program was significantly lower than the rate at the institutional level. The successful course completion rates for MATH-83, MATH-85, and MATH- 232 were significantly lower than the program-level rate. (Courses with successful course completion rates significantly higher than the program-level rate are noted in the table above.) The successful course completion rate for Mathematics falls within the first quartile (Q1) among program-level successful course completion rates (across 60 instructional programs, over the past three years). The successful course completion rate for Mathematics is among the lowest 25% of successful course completion rates among NVC programs.

Over the past three years, the difference between retention and successful course completion at the program level (26.4%) was significantly higher than the difference at the institutional level (17.7%). This figure represents the proportion of non-passing grades assigned to students at the end of the semester (i.e., grades of D, F, I, NP).

The following Mathematics courses claimed a difference (between retention and successful course completion) that exceeded the 26.4% difference at the program level:

- *MATH-85 (41.6%)*
- *MATH-83 (36.9%)*
- *MATH-93 (29.8%)*
- *MATH-95 (29.7%)*
- *MATH-232 (29.4%)*
- *MATH-86 (28.0%)*
- *MATH-106 (27.6%)*

Program Reflection:

The RPIE analysis highlights significant challenges faced by the Mathematics Program at Napa Valley College regarding retention and successful course completion rates, both of which have been lower than institutional averages over the past three years. These trends must be understood in the context of recent legislative changes, particularly AB 705 and AB 1705, which have significantly influenced our course offerings and student outcomes.

The shift to offering primarily transfer-level courses, as mandated by AB 705 and AB 1705, means students are entering more advanced classes without the option of preparatory courses. This transition likely contributes to lower success rates, as students face the challenge of starting directly in transfer-level courses regardless of their prior preparation. Consequently, this has impacted both initial success rates and overall retention within the program.

Recognizing these challenges, the Mathematics Department is committed to enhancing support systems to better prepare students for success in these courses. This commitment aligns with the Napa Valley College Educational Master Plan's goals to increase student retention and completion rates, particularly among disproportionately impacted populations. By expanding the availability of support programs and learning communities like MESA, Puente, and Umoja, we aim to provide students with the resources they need to succeed. These programs have been shown to significantly improve persistence and completion rates.

The SMS Scholars program, which supports students in corequisite classes with embedded tutors, exemplifies our dedication to providing targeted support. This initiative, along with mastery quizzes in Calculus I, prepares students for success in subsequent courses like Calculus II. We aim to extend these practices to Calculus II to ensure continuity in student support.

Additionally, we have initiated a pilot program offering ALEKS software to students to assist in developing individualized learning plans. However, students cannot be expected to bear the cost of two textbooks. Therefore, we seek district support to subsidize the cost of ALEKS software, ensuring equitable access to essential educational resources.

Moreover, the department is implementing data-informed enrollment planning to optimize course offerings and modalities, ensuring alignment with student needs and success. By leveraging insights from the 2023–26 Strategic Enrollment Management (SEM) Goals, we strive to enhance student engagement and success through tailored support and innovative instructional strategies.

Through these concerted efforts, the Mathematics Department remains dedicated to improving student outcomes and ensuring that all students have the opportunity to achieve their academic and professional goals, in alignment with Napa Valley College's mission and strategic priorities.

2. Student Equity

	Retention Rates (Across Three Years)		Successful Course Completion Rates (Across Three Years)	
	Program Level	**Institution Level**	**Program Level**	**Institution Level**
Unknown Gender			***55.8%***	69.3%
19 or Younger			***59.5%***	71.1%
African American/Black			***47.5%***	68.2%
Latinx/Hispanic			***54.2%***	69.4%
First-Generation			***53.8%***	69.4%
Not Disabled			***58.9%***	73.0%
Non-Veteran	***85.1%***	90.9%		

Source: SQL Queries for Fall 2024 Program Review

Bold italics denote a statistically significant difference between rates at the program and institutional levels, with the lower of the two rates in ***bold italics***.

*Data suppressed due to low N (<10 students in cohort).

Notes:

Grades of EW (Excused Withdrawal) for spring 2020 and beyond are not included in the calculations of the three-year retention and successful course completion rates reported above. This approach reflects the standard recommended research practice of not including EWs in either the numerator or the denominator for these rates.

The age groupings are based on the student's age of August 15 of each academic year.

The shaded cells in the table do not have data reported because evidence of disproportionate impact was not found at the institutional level (for those demographic group – metric combinations).

RPIE Analysis: This analysis of student equity focuses on the seven demographic groups with significantly lower retention or successful course completion rates found at the institutional level (vs. the corresponding rates among all other demographic groups, combined) over the past three years. Tests of statistical significance were conducted to compare program-level and institution-level rates among the seven groups listed above.

Within the Mathematics Program, the retention rate among non-veterans was significantly lower than the rate at the institutional level.

Within the Mathematics Program, the successful course completion rates among students of unknown gender, students ages 19 and younger, African American/Black students, Latinx/Hispanic students, first-generation students, and students without a disability reported were significantly lower than the corresponding rates at the institutional level.

These findings regarding equity reflect the findings that emerged from the comparison of retention and successful course completion at the program vs. institutional level, where the program-level rates were significantly lower than the institution-level rates. (See Section I.B.1 above.)

Program Reflection:

The RPIE analysis highlights significant equity challenges within the Mathematics Program at Napa Valley College, particularly concerning retention and successful course completion rates among various demographic groups. These disparities underscore the need for targeted strategies to support students who are not achieving at the same levels as their peers.

Within the Mathematics Program, retention rates among non-veteran students and successful course completion rates among students of unknown gender, those aged 19 and younger, African American/Black students, Latinx/Hispanic students, first-generation students, and students without a disability are notably lower than institutional averages. This situation emphasizes the importance of intensifying our efforts to address these gaps.

To tackle these challenges, the Mathematics Department is committed to aligning its efforts with the Napa Valley College Educational Master Plan, which emphasizes equitable student outcomes and the importance of supporting disproportionately impacted populations. Key strategies include:

1. **Enhanced Support Programs:** Expanding participation in impactful support programs like MESA, Puente, and Umoja, which have demonstrated success in improving persistence and completion rates. These programs offer tailored support to first-generation students and students from underrepresented communities, fostering a more inclusive educational environment.
2. **Faculty Experts in the Math Success Center:** Increasing the involvement of faculty experts in the Math Success Center and related tutoring services is crucial. By enhancing these resources, we can provide students with expert guidance and personalized support, helping them overcome academic challenges and succeed in their courses. This aligns with the college's mission to continuously improve the student experience by providing wraparound support services.
3. **Data-Informed Enrollment Planning:** Utilizing data to optimize course offerings and modalities, ensuring they align with student needs and preferences. This approach aims to improve alignment between course offerings and enrollment, as outlined in the Educational Master Plan.
4. **Focused Student Engagement:** Increasing involvement in learning communities and other support programs to ensure they operate at or near full capacity. By enhancing engagement, we aim to boost retention and completion rates among all student demographics.

Through these strategic initiatives, the Mathematics Department seeks to improve student outcomes and ensure equitable access to high-quality education for all students, in alignment with Napa Valley College's mission and strategic priorities. By addressing these equity gaps and enhancing support services, we aim to foster a more inclusive and supportive learning environment that empowers all students to succeed.

3. Retention and Successful Course Completion Rates by Delivery Mode (of Courses Taught through Multiple Delivery Modes, i.e., In-Person, Hybrid, and Online)

	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
	In-Person	Online	Hybrid	In-Person	Online	Hybrid
In-Person vs. Online						
MATH-83	80.3%	73.9%		41.7%	42.0%	
MATH-86	85.5%	86.0%		61.5%	53.8%	
MATH-106	89.0%	***84.8%***		62.6%	57.2%	
MATH-108	95.6%	***84.6%***		91.1%	***56.6%***	
MATH-120	89.6%	***81.3%***		80.5%	***57.0%***	
MATH-121	97.8%	85.6%		91.5%	***58.1%***	
MATH-232	94.9%	***81.6%***		75.5%	***50.1%***	
In-Person vs. Hybrid						
MATH-83	92.9%		85.7%	53.6%		42.9%
MATH-86	72.7%		72.2%	63.6%		33.3%
MATH-106	89.0%		***81.7%***	62.6%		***52.5%***
MATH-108	95.6%		***82.7%***	91.1%		***65.3%***
MATH-120	89.6%		***81.4%***	80.5%		***55.9%***
MATH-121	100%		77.5%	92.5%		***59.6%***
MATH-221	90.6%		91.7%	90.6%		***70.8%***
MATH-222	81.0%		100%	***57.1%***		90.9%
MATH-232	94.9%		***85.8%***	75.5%		***57.9%***
Online vs. Hybrid						
MATH-83		***69.0%***	85.7%		36.2%	42.9%
MATH-85		91.9%	86.7%		48.6%	53.3%
MATH-86		89.4%	***72.2%***		68.1%	***33.3%***
MATH-106		84.8%	81.7%		57.2%	52.5%
MATH-108		84.6%	82.7%		56.6%	65.3%
MATH-120		81.3%	81.4%		57.0%	55.9%
MATH-121		82.4%	77.5%		48.0%	59.6%
MATH-220		65.2%	78.6%		***26.1%***	57.1%
MATH-232		***81.6%***	85.8%		***50.1%***	57.9%
Program Total						
In-Person vs. Online	90.8%	***82.4%***		72.4%	***53.0%***	
In-Person vs. Hybrid	91.8%		***84.1%***	75.1%		***57.3%***
Online vs. Hybrid		82.3%	83.8%		***52.4%***	56.8%

Source: SQL Queries for Fall 2024 Program Review
This table compares student performance in courses offered through multiple delivery modes within the same academic year.
Bold italics denote a significantly lower rate within that delivery mode.

<u>RPIE Analysis</u>: Over the past three years, eleven courses within the Mathematics Program were offered through multiple delivery modes within the same academic year. MATH-106, MATH-108, MATH-120, and MATH-232 were offered through all three delivery modes in 2021-2022, 2022-2023, and 2023-2024, as was MATH-121 in 2021-222 and 2022-2023 and MATH-83 and MATH-86 in 2021-2022. MATH-83, MATH-86, and MATH-121 were offered in online and in-person formats in 2023-2024. MATH-85 and MATH-220 were offered through online and hybrid formats in 2021-2022. MATH-221 was offered through hybrid and in-person formats in 2023-2024, as was MATH-222 in 2022-2023. This analysis focuses on program-level rates. Details regarding retention and successful course completion rates within individual courses are reported in the table above.

Within the Mathematics Program:

- *In courses that were offered through in-person and online formats, the retention rate in online sections was significantly lower than the retention rate in in-person sections.*
- *In courses that were offered through in-person and hybrid formats, the retention rate in hybrid sections was significantly lower than the retention rate in in-person sections.*
- *In courses that were offered through online and hybrid formats, the retention rate in online sections reflected the retention rate in hybrid sections. (The difference was not statistically significant.)*

Within the Mathematics Program:

- *In courses that were offered through in-person and online formats, the successful course completion rate in online sections was significantly lower than the successful course completion rate in in-person sections.*
- *In courses that were offered through in-person and hybrid formats, the successful course completion rate in hybrid sections was significantly lower than the successful course completion rate in in-person sections.*
- *In courses that were offered through online and hybrid formats, the successful course completion rate in online sections was significantly lower than the successful course completion rate in hybrid sections.*

Program Reflection:

The RPIE analysis underscores the varied retention and successful course completion rates across different delivery modes within the Mathematics Program at Napa Valley College. The data reveals that online and hybrid formats have significantly lower retention and success rates compared to in-person classes. This highlights the importance of refining our course delivery strategies to better meet student needs and enhance learning outcomes.

While nearly four in five student respondents value the availability of online or hybrid courses, there remains a strong demand for in-person classes. As noted in the Napa Valley College Educational Master Plan, students have expressed a clear preference for more in-person offerings, reflecting diverse learning styles and needs. This feedback emphasizes the necessity for flexibility in our course offerings to accommodate all student preferences.

In response, the Mathematics Department is committed to expanding its in-person course offerings to better align with student demand and improve educational outcomes. This initiative supports the Enrollment Stabilization Goals outlined in the Educational Master Plan, which emphasize data-informed enrollment planning and alignment between course offerings and student needs.

Additionally, the department is committed to several strategic initiatives to enhance student success and equity:

1. **Enhanced Professional Development:** We will focus on improving professional development opportunities for faculty to ensure high-quality instruction across all delivery modes. This includes training in culturally responsive pedagogy and effective teaching strategies for in-person, online, and hybrid courses.
2. **Data-Informed Decision-Making:** By fostering a culture of data use, we aim to utilize insights from student performance across different modalities to inform scheduling and instructional strategies. This approach aligns with the 2024–25 Institutional Planning and Resource Allocation Priority, which emphasizes the use of data to enhance student success.
3. **Support Programs and Learning Communities:** Increasing student involvement in support programs and learning communities is crucial. Programs such as MESA, Puente, and Umoja have proven effective in enhancing student persistence and success, particularly for disproportionately impacted populations.

Through these targeted efforts, the Mathematics Department seeks to improve retention and successful course completion rates across all delivery modes, ensuring that all students have access to the support and resources they need to succeed. By aligning our strategies with institutional goals and enhancing our in-person offerings, we are dedicated to fostering an inclusive and supportive learning environment that empowers students to achieve their educational aspirations.

C. Student Achievement

1. Program Completion

	2021-2022	2022-2023	2023-2024
Degrees			
AS-T Degrees: MATH.AST	19	18	23
Institutional: AS-T Degrees	**110**	**111**	**122**
Source: SQL Queries for Spring 2025 Program Review			

RPIE Analysis: The Mathematics Program conferred 60 degrees between 2021-2022 and 2023-2024. The Mathematics Program accounted for 17.5% of the AS-T degrees awarded by NVC across the three-year period. In 2021-2022, the program accounted for 17.3% of AS-Ts conferred by NVC. In 2023-2024, the program accounted for 18.9% of AS-Ts conferred. The number of degrees awarded by the Mathematics Program increased by 21.1% over the three-year period, while the number of AS-Ts awarded by the institution increased by 10.9%.

Program Reflection:

We are proud to report that the Mathematics Program at Napa Valley College conferred 60 degrees between 2021-2022 and 2023-2024, accounting for 17.5% of the Associate in Science for Transfer (AS-T) degrees awarded by the college during this period. Notably, the number of degrees awarded by the Mathematics Program increased by 21.1%, compared to a 10.9% increase in AS-T degrees at the institutional level. This achievement underscores our commitment to fostering student success and providing pathways to further education.

This increase in degree completions aligns with Napa Valley College's Educational Master Plan goals, particularly the emphasis on increasing transfer-focused completions. By focusing on equitable student outcomes, we aim to enhance the number of students transferring to four-year institutions, with particular attention to disproportionately impacted populations. As the data shows, first-generation students, students with disabilities, and support program participants are overrepresented among those earning transfer credentials, highlighting the effectiveness of our support programs.

Our success reflects strategic efforts to align program offerings with student needs and transfer goals. By leveraging data-informed enrollment planning, we ensure that our course offerings align with student success and demand, supporting the college's broader Enrollment Stabilization Goals. This strategic alignment not only enhances our students' academic experiences but also contributes to their long-term success as they pursue higher education.

We remain committed to continuous improvement and alignment with the 2023–26 Strategic Enrollment Management (SEM) Goals, which focus on increasing enrollment in degree programs with a transfer focus. By fostering an inclusive educational environment and offering robust support services, we empower our students to achieve their academic and professional aspirations.

Through these efforts, the Mathematics Department is dedicated to contributing to Napa Valley College's mission of academic excellence and equity, ensuring that all students have the opportunity to succeed and advance in their educational journeys.

2. Program-Set Standards: Job Placement and Licensure Exam Pass Rates

This section does not apply to the Mathematics Program, as the discipline is not included in the Perkins IV/Career Technical Education data provided by the California Community Colleges Chancellor's Office, and licensure exams are not required for jobs associated with the discipline.

II. CURRICULUM

A. Courses

Subject	**Course Number**	**Date of Last Review & Approval by Curriculum Committee** *(Courses with last review dates of 6 years or more must be scheduled for immediate review)*	**Has Prerequisite/ Corequisite*** *Yes/No* **& Date of Last Review**	**In Need of Revision** *Indicate Non-Substantive (NS) or Substantive (S)* **& Academic Year Anticipated**	**To Be Archived** *(as Obsolete, Outdated, or Irrelevant)* **& Academic Year Anticipated**	**No Change**
MATH	80	2/20/2025	Yes			X
MATH	81	2/20/2025	No			X
MATH	83	3/21/2024	Yes			X
MATH	85	11/21/2024	No		09/20/2024	
MATH	86	12/13/2018	Yes	NS 2025-2026		
MATH	87	3/21/2024	Yes			X
MATH	88	11/16/2023	Yes			X
MATH	91	11/21/2024	No		09/20/2024	
MATH	93	11/21/2024	No		09/20/2024	
MATH	95	11/21/2024	Yes		09/20/2024	
MATH	106	12/13/2018	Yes	NS 2025-2026		
MATH	108	12/13/2018	Yes	NS 2025-2026		
MATH	115	12/14/2017	Yes	NS 2025-2026		
MATH	120	3/10/2022	Yes	S 2025-2026		
MATH	121	10/19/2023	Yes	S 2025-2026		
MATH	130	11/16/2023	Yes			X
MATH	220	12/9/2021	Yes			X
MATH	221	5/23/2013	Yes	NS 2025-2026		
MATH	222	10/19/2023	Yes			X
MATH	232	11/01/2024	Yes			X
MATH	235	12/14/2023	Yes			X
MATHNC	600	4/11/2019	No			X
MATHNC	810	5/12/2022	No			X

*Note: Prerequisites need to be validated (in subsequent process) through Curriculum Committee.

Program Reflection:

The Mathematics Department at Napa Valley College is dedicated to aligning its curriculum with legislative requirements and institutional goals to support student success and equity. In response to AB 1705, which focuses on improving access to transfer-level courses, we introduced new courses last year, including MATH 80, 81, 87, and 88. These courses are designed to enhance students' ability to succeed in transfer-level mathematics, contributing to the equitable student outcomes goals outlined in the Napa Valley College Educational Master Plan.

Additionally, to remain compliant with AB 705 and AB 1705 legislation, the department has archived courses MATH 85, 91, 93, and 95 as of this year. This decision aligns with our commitment to providing students with the most relevant and effective pathways for completing transfer-level math and supports the college's strategic enrollment management goals.

Courses such as MATH 120 and 121 are scheduled for substantive revisions in the 2025-2026 academic year due to updates required for common course numbering. This initiative ensures consistency across the California Community College system, facilitating easier course recognition and student transfer.

Our ongoing commitment to curriculum review and updates ensures that our offerings remain relevant and in alignment with evolving educational standards and student needs. We continue to implement data-informed enrollment planning, offering courses in various modalities—including in-person, hybrid, and online—to increase accessibility and accommodate diverse learning preferences. This approach supports the college's goals of increasing transfer rates to 4-year institutions, particularly for disproportionately impacted populations.

By continually refining our course offerings, the Mathematics Department ensures that students have access to high-quality education that prepares them for academic and professional success, aligning with Napa Valley College's mission and strategic priorities.

B. Degrees and Certificates[+]

Degree or Certificate & Title	Implementation Date	Has Documentation *Yes/No*	In Need of Revision+ *and/or Missing Documentation* & Academic Year Anticipated	To Be Archived* *(as Obsolete, Outdated, or Irrelevant)* & Academic Year Anticipated	No Change
Mathematics: AS-T	BOT 4/1/2011	Yes			Up-To-Date

*Note: Discontinuance or archival of degrees or certificates must go through the Program Discontinuance process or the Program Archival Task Force.

+Degrees and Certificates cannot be implemented until the required courses in them are approved and active.

Program Reflection:

The Mathematics Associate in Science for Transfer (AS-T) degree at Napa Valley College has been successfully updated to align with the California General Education Transfer Curriculum (Cal-GETC). This update ensures that our program meets the latest state standards and provides a streamlined pathway for students aiming to transfer to a four-year institution, particularly within the University of California (UC) and California State University (CSU) systems.

Our commitment to maintaining an up-to-date curriculum is rooted in our dedication to equitable student outcomes, as outlined in the Napa Valley College Educational Master Plan. By aligning the AS-T degree with Cal-GETC, we enhance students' ability to transfer efficiently and effectively, reducing the number of excess units taken and facilitating a seamless transition to their continued education.

This update supports the broader goals of increasing transfer rates to 4-year institutions, which is a critical objective both for the Mathematics Department and the college as a whole. Our focus on transfer-focused completions ensures that students, including those from disproportionately impacted populations, have access to high-quality education and opportunities for advancement.

The Mathematics AS-T degree's alignment with Cal-GETC exemplifies our commitment to providing students with the most relevant and beneficial educational opportunities, fostering academic success and preparing them for future academic and professional achievements.

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
16	11	14	69%	88%

Learning Outcomes Assessment at the Program/Degree/Certificate Level

Degree/Certificate	Number of Outcomes*	Number of Outcomes Assessed		Proportion of Outcomes Assessed	
		Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
MATH	3	0	3	0%	100%

Program Reflection:

The Mathematics Department at Napa Valley College acknowledges that while we have made strides in aligning our curriculum with institutional goals, we are currently behind in updating learning outcomes at the degree level. This gap highlights the need for a comprehensive review and enhancement of our program offerings to ensure they meet the evolving needs of our students and the demands of the workforce.

Our commitment to providing excellent educational opportunities is rooted in the Napa Valley College Educational Master Plan, which emphasizes student-centered and equity-focused strategies. In alignment with these goals, we are dedicated to ensuring that all courses and degree programs reflect the latest academic standards and best practices. This involves a systematic update of learning outcomes to ensure they are relevant, measurable, and aligned with both institutional objectives and labor market demands.

To address this, we are implementing several key initiatives:

1. Comprehensive Review Process: We will conduct a thorough review of learning outcomes at both the course and degree levels. This process will ensure that our curriculum remains current and responsive to the needs of our students and aligns with the Educational Master Plan's emphasis on improving student success metrics.
2. Enhanced Faculty Development: We will provide ongoing professional development opportunities for faculty to support the integration of culturally responsive pedagogy and innovative teaching practices. This aligns with the plan's goals to improve instructional quality across all delivery modes—hybrid, in-person, and online.
3. Data-Driven Curriculum Alignment: By fostering a data culture, we will utilize insights from institutional research to inform curriculum development and ensure alignment with student success and equity goals. This approach is in line with the Educational Master Plan's emphasis on data-informed planning and decision-making.
4. Strategic Alignment with Institutional Goals: Our efforts to update and enhance learning outcomes directly support the college's strategic priorities, including increasing the number of students who

transfer to four-year institutions and supporting disproportionately impacted populations in achieving their educational goals.

Through these initiatives, the Mathematics Department is dedicated to enhancing the educational experience for all students, ensuring that our program offerings are both rigorous and relevant. By aligning our efforts with Napa Valley College's mission and strategic goals, we strive to provide a transformative educational experience that empowers students to succeed in their academic and professional endeavors.

B. Summary of Learning Outcomes Assessment Findings and Actions

Our program has consistently collected and shared annual assessment data via SharePoint; however, we are currently behind on updating Student Learning Outcomes (SLOs) and program outcomes in the Nuventive system. As a result, the outcomes information pulled from Nuventive is not current and does not accurately reflect our ongoing assessment efforts. While our assessments themselves are up to date, the data has not been entered into Nuventive. To address this, time will be dedicated during the summer to input current SLOs and update program outcomes in the system, ensuring alignment between our documented assessments and institutional reporting tools.

Program Reflection:

While our program's assessment efforts remain consistent and up to date, we are currently behind on updating learning outcomes in the Nuventive system. Each year, we successfully collect assessment data and share it in our designated SharePoint repository; however, this information has not been regularly entered into Nuventive as required. Although our assessment processes are active and ongoing, the lack of data entry into the system creates a gap in documentation and compliance. Moving forward, we will prioritize updating Nuventive to ensure accurate reflection of our assessment activities and alignment with institutional reporting requirements.

IV. PROGRAM HIGHLIGHTS

The program-level plan that emerged from the last review (Math Spring 2022) included the following initiatives:

- DEI Colloquia
- Community of Practice Expansion
- Expand faculty experts' participation in the Math Success Center
- Reinstate proctored testing requirements

A. Accomplishments/Achievements Associated with Most Recent Three-Year Program-Level Plan

Launch of New Courses: The Mathematics Department successfully launched new courses, including MATH 81, 87, 88, and 110, which are tailored to meet the requirements set forth by AB 1705 and enhance student readiness for transfer-level mathematics.

Communities of Practice (COPs): Our implementation of Communities of Practice (COPs) has led to a noticeable increase in faculty morale and collaboration, fostering a supportive environment that benefits both instructors and students.

Mastery Quizzes: We have introduced mastery quizzes in Calculus I as a strategic initiative to better prepare students for Calculus II, ensuring they have a strong grasp of fundamental concepts before advancing.

Compliance with AB 1705: The department has worked diligently to align our curriculum with AB 1705 mandates, thereby streamlining pathways for students to achieve success in transfer-level courses and supporting equitable educational outcomes.

B. Recent Improvements

The Mathematics Department at Napa Valley College has made significant strides in course development and student support, aligning with recent legislative changes and the college's commitment to equity and student success. In response to AB 1705, we have meticulously developed new courses that focus on enhancing student readiness for transfer-level mathematics. This effort ensures compliance with legislative mandates while promoting equitable access to education.

To further support student success, the department has implemented embedded tutors in corequisite classes. This initiative provides students with immediate, in-class support, fostering a more personalized and effective learning environment. Embedded tutors play a crucial role in reinforcing course material and offering additional guidance, which is particularly beneficial for students who may need extra assistance.

These improvements align with Napa Valley College's vision of cultivating a learning environment grounded in equity, inclusion, and empowerment. By integrating these support mechanisms, we aim to address performance gaps among disproportionately impacted students, as highlighted in the Educational Master Plan. Our focus on providing wraparound support services is in line with the college's values of integrity, equity-mindedness, and social justice.

Furthermore, the department's efforts to align with AB 1705 reflect a broader commitment to improving transfer rates to four-year institutions. By ensuring our courses meet the highest standards and providing robust support systems, we are dedicated to empowering students to achieve their educational goals and succeed in their academic journeys.

These recent improvements underscore our commitment to continuous enhancement of the student experience, as we strive to provide high-quality education and support that align with Napa Valley College's mission and strategic priorities.

C. Effective Practices

One of the key effective practices within the Mathematics Department is the implementation of Communities of Practice (COPs). These collaborative groups have led to a noticeable increase in faculty morale and collaboration, fostering a supportive environment that directly benefits both instructors and students. COPs serve as a platform for faculty to share best practices, develop innovative teaching strategies, and collectively address challenges related to student success and equity.

Through these concerted efforts and effective practices, the Mathematics Department remains dedicated to improving student outcomes and ensuring that all students have the opportunity to achieve their academic and professional goals, in alignment with Napa Valley College's mission and strategic priorities.

V. PROGRAM PLAN

A. 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:

(Identify key sections of the report that describe the state of the program. Not an exhaustive list, and not a repeat of the report. Just key points.)

B. Outline the three-year plan for the program by completing Columns A – D of the Three-Year Program Planning Template (the Excel file that will accompany the Program Review Report). For the fall 2024 program review cycle, the 3-year program plan will span 2025-2026 through 2027-2028.

VI. RESOURCES NEEDED TO IMPLEMENT PROGRAM PLAN

A. 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.

Description of Current Program Resources Relative to Plan:

B. Identify the resources needed in order to implement each component of the three-year plan for the program by completing Columns E – F of the Three-Year Program Planning Template (the Excel file that will accompany the Program Review Report). If more than one type of resource (e.g., operating expenses, technology, supplies, facilities, equipment, etc.) is needed to implement the initiative, list each need on consecutive rows following the unit-level initiative.

Note: Resources to support program plans are allocated through the annual planning and resource allocation process (not the program review process).

The completed Three-Year Program Planning Template will serve as a draft/starting point for upcoming annual planning and resource allocation cycles.

A	B	C	D	E	F
PROGRAM:	*Mathematics*				
PLANNING YEARS:	**2025-2026 through 2027-2028**				
Program/Service	**Unit-Level Initiative**	**Anticipated Year of Implementation**	**Anticipated Outcome of Initiative**	**Description of Resource Need**	**Type of Resource Need**
Mathematics	Support and expand existing support services (SMS Scholars)	2024-2025 (Current)	Improved Academic Performance, Enhanced Student Engagement and Confidence, Increased Retention and Completion Rates, Improved Student Experience, Retention and Completion Rates	Funding to support hours for counselors to visit classrooms, funding for embedded tutors, funding for faculty participation	Other
Mathematics	AB1705 Curriculum Refinement	2024-2025 (Current)	Alignment with Legislation, Improved Access and Equity for Students, Enhanced Student Preparedness, Faculty Training and Development, Improved Student Outcomes	Funding for time for faculty to work on staying up to date on legislation	Other
Mathematics	Community of Practice	2024-2025 (Current)	Collaborative Content Review, Creation of High-Quality Resources, Consistency Across Courses, Increased Professional Development, Improved Student Outcomes	Funding for faculty to work together in Communities of Practice	Other
Mathematics	MESA Connection	2025-2026	Increased Student Support, Enhanced Academic Performance, Improved Retention and Graduation Rates, Stronger Student Community, Development of STEM Skills	Funding for faculty to participate in cohorts.	Staffing
Mathematics	ALEKS Software	2025-2026	Individualized Learning Plans, Increased Student Success, Closing Achievement Gaps, Enhanced Student Engagement, Improved Retention and Completion Rates	Software licenses for all students enrolled in the calculus corequiste course.	Technology
Mathematics	MSC Faculty Experts	2025-2026	Access to Expert Guidance, Improved Student Support, Enhanced Learning Experience, Increased Student Confidence, Strengthened Faculty-Student Collaboration, Timely Academic Assistance, Development of Targeted Resources, Increased Retention and Success Rates	Funding for faculty to work in the Math Success Center	Staffing
Mathematics	Classroom Renovations	2025-2026	Improved Learning Environment, Enhanced Student Engagement, Increased Comfort and Accessibility, Modernized Technology Integration, Better Collaboration Opportunities, Improved Focus and Productivity, Enhanced Faculty Teaching Experience, Support for Diverse Learning Styles	Technology, desks, chairs, projectors, computers	Facilities
Mathematics	Zero Textbook Cost Support	2025-2026	Reduced Financial Burden on Students, Increased Access to Educational Resources, Improved Student Retention, Enhanced Equity and Inclusion, Encouraged Use of Open Educational Resources (OER), Greater Flexibility in Course Materials, Increased Faculty Collaboration, Sustainable and Cost-Effective Learning Solutions	Training for faculty	Other
				Funding for faculty to convert courses to ZTC	Other

PROGRAM **SPRING 2025**

Completed by Supervising Administrator:

Christopher Farmer

Date:

5/5/5025

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

The Mathematics Department has demonstrated a strong commitment to student success and equity through its proactive alignment with legislative mandates and institutional goals. The introduction of new courses, such as MATH 80, 81, 87, and 88, showcases the department's dedication to improving access to transfer-level mathematics, as required by AB 1705. Moreover, the SMS Scholars program, which provides embedded tutors in corequisite classes, exemplifies the department's focus on supporting equitable student outcomes. The implementation of mastery quizzes in Calculus I further highlights the program's efforts to prepare students for success in subsequent courses. Additionally, the increase in AS-T degrees awarded is a testament to the department's effectiveness in supporting student transfer goals. The Mathematics Department's ongoing efforts to align its curriculum with legislative requirements and institutional goals ensure that its offerings remain relevant and effective in meeting the evolving needs of students and the workforce. These strengths and successes, as evidenced by data analysis, outcomes assessment, and curriculum review, position the Mathematics Department as a leader in promoting student achievement and equity in mathematics education.

Areas of concern, if any:

While the Mathematics Department has made significant strides in promoting student success and equity, there are areas of concern that require attention. Retention and successful course completion rates within the program remain below institutional levels, indicating a need for targeted interventions and support to ensure that all students have the opportunity to succeed. Moreover, equity gaps persist among various student populations, highlighting the necessity for data-informed strategies to address these disparities and promote inclusive learning environments. Additionally, the success rates of online and hybrid courses lag behind those of in-person offerings, suggesting a need for enhanced support and resources to ensure high-quality instruction and student engagement across all modalities. Addressing these concerns will be crucial for the Mathematics Department to fully realize its potential in promoting student success and equity.

Recommendations for improvement:

To address the identified areas of concern and further enhance the Mathematics Department's ability to support student success and equity, several key recommendations for improvement should be considered. Firstly, it is recommended that the integration of technology solutions to support co-requisite models, mastery-based learning, and academic integrity in online courses be prioritized. This should include investments in upgraded classroom technology and online learning platforms to enhance remedial learning in co-requisite courses. By leveraging adaptive learning platforms, digital assessment tools, and interactive software, the program can personalize instruction, monitor student progress, and ensure the integrity of online assessments. These technologies will be particularly beneficial for students in co-requisite courses, providing targeted support and reinforcement of foundational concepts. Secondly, it is recommended that professional development opportunities for faculty be expanded to enhance their skills in online pedagogy, effective use of new technologies, and best practices for co-requisite instruction. By equipping faculty with the necessary tools and knowledge, high-quality instruction and student engagement across all modalities can be ensured. Additionally, it is recommended that the institution support the Mathematics Department's efforts to move towards Zero Textbook Cost (ZTC) courses. By adopting open educational resources (OER) and other no-cost course materials, financial barriers for students can be reduced, and equity in access to education can be promoted. The institution can assist by providing funding for OER development, offering training and support for faculty in integrating these resources into their courses, and recognizing the efforts of faculty who adopt ZTC materials. Finally, it is recommended that targeted interventions and support services (such as embedded tutoring and the SMS Scholars program) be provided to address equity gaps and ensure that all students have the opportunity to succeed. By implementing these recommendations, with a strong emphasis on upgrading classroom technology, online learning platforms for co-requisite courses, and institutional support for ZTC initiatives, the Mathematics Department can position itself as a leader in equity-minded, technology-enhanced mathematics education.

Additional information regarding resources:

The Mathematics Department's unwavering dedication to embracing challenges, adapting its approaches, and continuously striving for improvement is a testament to its commitment to student success. By allocating the necessary resources to support the department's initiatives, the institution can foster a collaborative partnership that empowers the Mathematics Department to implement innovative, equity-minded strategies and solidify its position as a leader in mathematics education. Together, the college and the Mathematics Department can create a learning environment that truly prioritizes student achievement and equity.