YEARLY PLANNING DISCUSSION TEMPLATE
General Questions

Program Name: <u>Mathematics</u>   **Academic Year:** <u>**2022-2023**</u>

1. Has your program mission or primary function changed in the last year?

No. There have not been any changes that would require a change to our Program Mission.

The mission of the Department of Mathematics is to provide quality educational opportunities related to mathematics that enhance student learning to enable students to reach their educational, occupational, or personal goals. The objectives of the courses in the program are to provide:

• Courses for transfer to a four-year university;
• Courses for students to meet their vocational/technical degree goals; and
• Developmental courses for students to satisfy prerequisites for college level courses.

These objectives meet the mission of the institution. The mission of Allan Hancock College is to provide quality educational opportunities that enhance student learning and foster the creative, intellectual, cultural, and economic vitality of our diverse community. The Mathematics program aligns with all of the goals for the Student Learning & Success described in the college's Strategic Plan; Provide educational programs and comprehensive student support services that promote student success and respond to qualitative and quantitative assessment of learning. The Mathematics program at AHC also provides courses that enable students to complete lower division prerequisites and general education requirements for transfer to institutions of higher learning and/or received an Associate's degree in Mathematics, Associate's degree in Physics Emphasis, and Associate's degree in Computer Science Emphasis.

2. Were there any noteworthy changes to the program over the past year? (eg, new courses, degrees, certificates, articulation agreements)

YES. There are noteworthy changes to the program over the past year.

- In Fall 2022, the Mathematics Sciences Department can only offer transfer-lever course to comply with Assembly Bill 705 (AB 705). AB 705 required that all incoming students be placed into transfer level mathematics during their first year of community college. In Fall 2022, the Mathematics Sciences Department no longer offered any below transfer-level course (Math 521, Math 309, Math 311, Math 321, and Math 331).

- In Fall 2022, the Mathematics Sciences Department offered more sections of Math 123 and Math 100s.

- Starting from Fall 2022, Hancock College no longer offered below transfer level math courses due to the state law, AB 705, coming from the Chancellor's Office. As a result, the following courses no longer offered at Allan Hancock College starting in Fall 2022:

  Math 521- Foundations of Mathematics
  Math 309- Algebra and Math Literacy
  Math 311- Algebra 1
  Math 321- First Year Geometry
  Math 331- Algebra 2

- Starting from Fall 2022, Mathematics department offered support courses online (Math 135-S, Math 131-S, Math 141-S, Math 123-S).

- Mathematics program revised the Graduation Requirement for year 2022-2023.

New Graduation requirement (effective 2022-2023)

1. Pass one of the following courses with a grade C or better:
   - any 100-level math course of at least three units,
   - Math 309, Math 321, or Math 331 (Note: these courses will no longer be offered after Summer 2022).

2. Successful completion of Algebra 2 or higher at an accredited collegiate institution.

3. A score of 3 or higher on AP Statistics or any of the AP Calculus exams.

Old Graduation requirement

1. Pass one of the following courses with a grade C or better: Math 309, Math 321, Math 331, or any 100-level math course of at least three units

2. Successful completion of Algebra 2 or higher at an accredited collegiate institution.

3. A score of 3 or higher on AP Statistics or any of the AP Calculus exams.

   NOTE: Students should consult a counselor to see if Math 309 is best for them. STEM majors and others who intend to take Math 121 or higher, should take Math 331.

- Mathematics faculty members made new Math Pathways to fully comply with AB 705 state guidelines
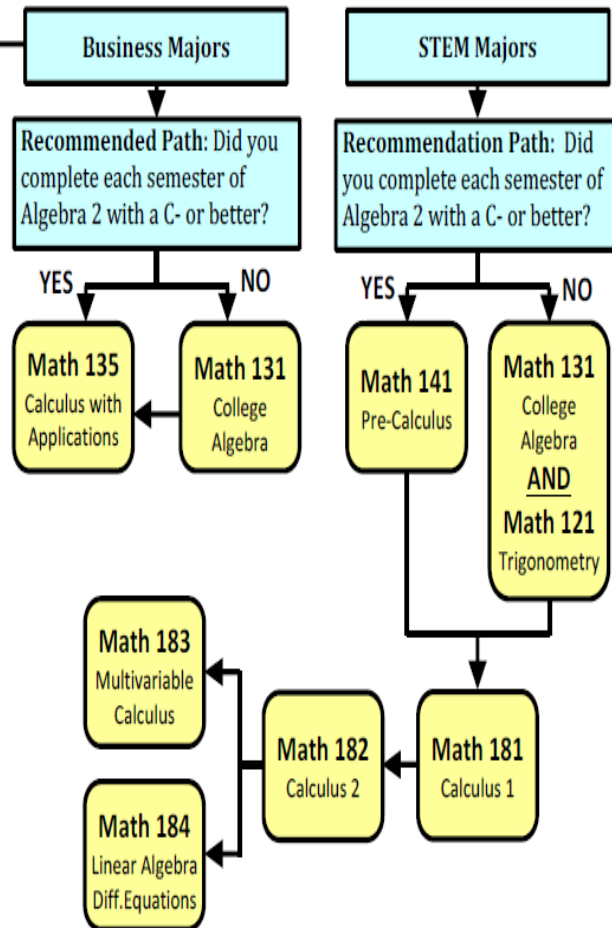
Mathematics Success Sequence, Fall 2022

Statistics and Liberal Arts Math

Math 123S supports Math 123; it is highly recommended, and in some cases is required.

Math 100	Math 105	Math 123
Nature of Modern Math	Mathematics for Teachers	Elementary Statistics
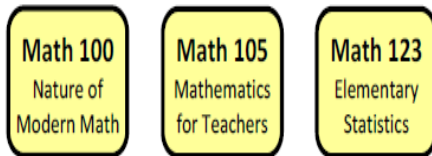
Business and STEM

Enrollment in the appropriate support course (Math 131S, 135S, 141S), is highly recommended, and in some cases is required.

Business Majors

Recommended Path: Did you complete each semester of Algebra 2 with a C- or better?

YES → **Math 135** Calculus with Applications

NO → **Math 131** College Algebra

STEM Majors

Recommendation Path: Did you complete each semester of Algebra 2 with a C- or better?

YES → **Math 141** Pre-Calculus

NO → **Math 131** College Algebra **AND** **Math 121** Trigonometry

Math 183 Multivariable Calculus

Math 182 Calculus 2

Math 181 Calculus 1

Math 184 Linear Algebra Diff. Equations

Math Courses, Units (Contact Hours)

Course	Units (Contact Hours)
100 Nature of Modern Mathematics	3 (3)
105 Mathematics for Teachers	4 (5)
121 Trigonometry	3 (3)
123 Elementary Statistics	4 (5)
131 College Algebra	3 (4)
135 Calculus with Applications	4 (4)
141 Pre-Calculus	6 (6)
181 Calculus 1	4 (5)
182 Calculus 2	4 (5)
183 Multivariable Calculus	4 (5)
184 Linear Algebra/Differential Equations	5 (5)

Updated: 3/17/22

- Concurrent Enrollment/ AB 1705 – A prerequisite cannot be required if that course is not part of the degree program related to the course for which it is a prerequisite. Math Department will remove these from course outlines.

3. **Is your two-year program map in place and were there any challenges maintaining the planned schedule?**

Yes. The 2-year program map is in place. Mathematics Department will keep updating with the changes to programs made in the future. All of our mathematics courses have been mapped and approved onto the C-ID numbering system.

4. **Were there any staffing changes?**

Yes. In Fall 2022, Mathematics Department hired three new full-time faculty members (Amanda Lombard, Chris Eachus, and Karina Novoa) to teach math classes.

In Spring 2023, Math Center hired one new instructional assistant (Benjamin Aguayo).

5. **What were your program successes in your area of focus last year?**
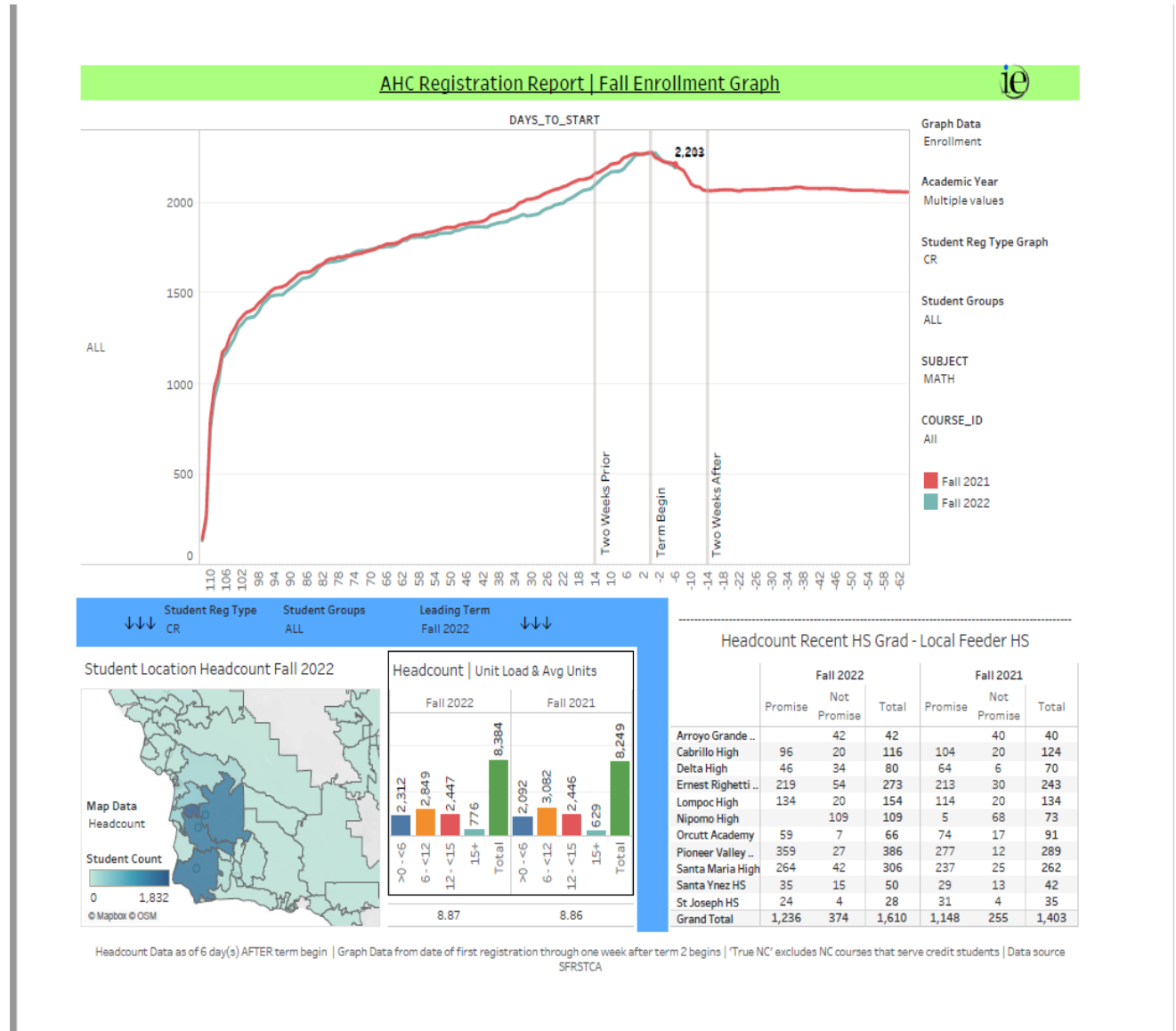
Enrollment:

Due to the COVID crisis, Allan Hancock College and the Mathematical Sciences Department had low enrollment during Year 2020-2022. Allan Hancock College and the Mathematical Sciences Department are gradually recovering the number of enrollment as time goes. This graph shows that the enrollment in Fall 2022 was greater than the enrollment in Fall 2021. It seems like the enrollment is increasing as we offer more face-to-face courses on campus.
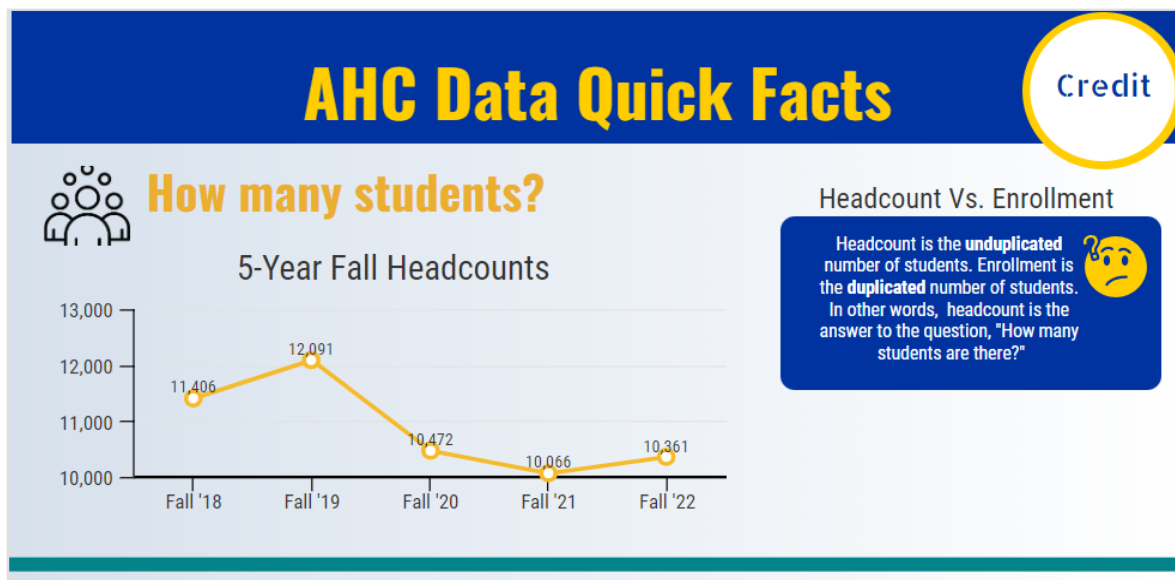
Comparing Fall 2021 and Fall 2022, we see that more High School (counting both Promise students and Not Promise students) are returning to Allan Hancock College and taking Math courses.

Please see the attached the particular reports for Math – enrollment (registration numbers) and FTES (full-time equivalent student). From the graph, it shows the "even" on enrollment. In Fall 2022, there were 1610 high school students taking math courses versus there were 1403 high school students taking math courses in Fall 2021.

	Fall 2022			Fall 2021		
	Promise	Not Promise	Total	Promise	Not Promise	Total
Arroyo Grande ..		42	42		40	40
Cabrillo High	96	20	116	104	20	124
Delta High	46	34	80	64	6	70
Ernest Righetti ..	219	54	273	213	30	243
Lompoc High	134	20	154	114	20	134
Nipomo High		109	109	5	68	73
Orcutt Academy	59	7	66	74	17	91
Pioneer Valley ..	359	27	386	277	12	289
Santa Maria High	264	42	306	237	25	262
Santa Ynez HS	35	15	50	29	13	42
St Joseph HS	24	4	28	31	4	35
Grand Total	1,236	374	1,610	1,148	255	1,403

Headcount Data as of 6 day(s) AFTER term begin | Graph Data from date of first registration through one week after term 2 begins | 'True NC' excludes NC courses that serve credit students | Data source SFRSTCA

There are no data for Year 2022-2023 yet but comparing the percentage (in year 2021-2022) who has successfully completed Transfer Math within two primary terms (AB 705) is higher than the percentage (in year 2018-2019) who has successfully completed Transfer Math within

two primary terms (AB 705). It shows the trend that Mathematical Sciences Department is on the right track.

AHC THROUGHPUT

<u>Cohort:</u> Credit all AHC students attempting first Math course
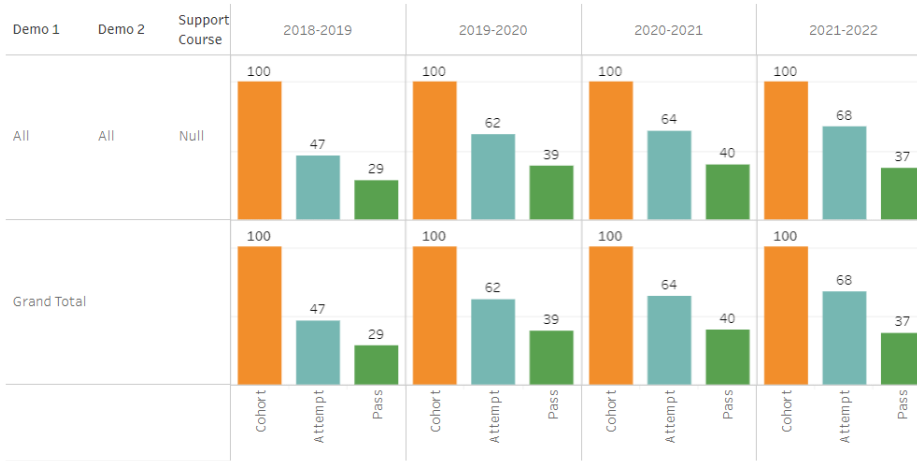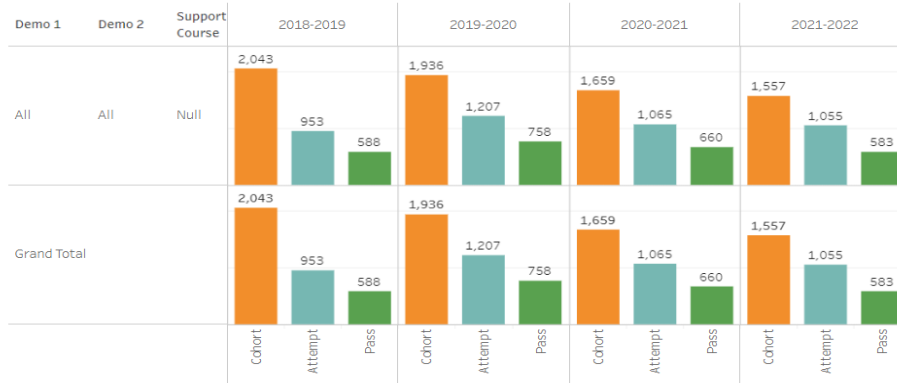<u>Outcome Type & Time Frame:</u> Complete Transfer Math Within two primary terms (AB705)
<u>Data sorted by:</u> Academic year student attempted first Math course
<u>Display Type:</u>

Percent of Cohort
Percent of Cohort that *attempted* Transfer Math Within two primary terms (AB705)
Percent of Cohort that *successfully passed* Transfer Math Within two primary terms (AB705)

Demo 1	Demo 2	Support Course	2018-2019	2019-2020	2020-2021	2021-2022
All	All	Null	100 / 47 / 29	100 / 62 / 39	100 / 64 / 40	100 / 68 / 37
Grand Total			100 / 47 / 29	100 / 62 / 39	100 / 64 / 40	100 / 68 / 37

(Columns within each year: Cohort / Attempt / Pass)

Time Frame
Within two primary terms (AB705)

Outcome Type
Transfer Math

Demographic 1
ALL

Demographic 2
ALL

SupportCourse
No

Engl Course ALL

Math Support Course
Any

Math Course ALL

Ed Goal All Ed Goals

Any College Now / Concurrent
(All)

Value or Percent
Percent

<u>SCFF - Student Centered Funding Formula</u>
---Countdown begins the first academic year a student is credit non-special admit.

AB705

Demo 1	Demo 2	Support Course	2018-2019	2019-2020	2020-2021	2021-2022
All	All	Null	2,043 / 953 / 588	1,936 / 1,207 / 758	1,659 / 1,065 / 660	1,557 / 1,055 / 583
Grand Total			2,043 / 953 / 588	1,936 / 1,207 / 758	1,659 / 1,065 / 660	1,557 / 1,055 / 583

(Columns within each year: Cohort / Attempt / Pass)

Time Frame
Within two primary terms (AB705)

Outcome Type
Transfer Math

Demographic 1
ALL

Demographic 2
ALL

SupportCourse
No

Engl Course ALL

Math Support Course
Any

Math Course ALL

Ed Goal All Ed Goals

Any College Now / Concurrent
(All)

Value or Percent
Value

<u>SCFF - Student Centered Funding Formula</u>
---Countdown begins the first academic year a student is credit non-special admit.

<u>AB705</u>
---Countdown begins the first term a student takes any math or English course.

Math Center:

- Compared to Spring 2022, Math Center attendance has increased in Spring 2023. Overall, attendance at the Math Center Year 2022-2023 has been better than Year 2021-2022. Math Center continues to run smoothly and there is a 35% increase in attendance from Fall of 2021.

- Math Center offered free calculator loans to students more than 300 TI-84 graphing calculators and more than 70 TI-83 graphing calculators in Spring 2023.

- A new centralized web page for tutoring services has been created for easier access for students.

Outreach Programs:

- The Mathematics Sciences Department participated in Career Exploration Day on April 22, 2023.

- Our department continually participated in Bow-Wow Event every semester.

Learning Outcomes Assessment

a. Please summarize key results from this year's assessment.

Since our last Program Review, we have changed the CSLOs to match the Program SLOs. In doing so, we have simplified the assessment process while providing a more accurate mapping between the CSLOs and PLOs. Prior to switching to the PSLOs, the department assessed all SLOs for all mathematics courses but in Fall 2022, Mathematics department assessed Student Learning Outcome #1 and Student Learning Outcome #2.

Student Learning Outcome #1- Students will demonstrate the ability to utilize a variety of problem-solving techniques and strategies to identify, analyze and solve problems.

Student Learning Outcome #2 - Students will demonstrate the ability to represent mathematical information symbolically, graphically, numerically, and in writing.

From the result of SLO assessment, it showed that different teaching modalities improved student engagement and students' success. No need for an assessment or improvement plan was necessitated at this moment.

b. Please summarize your reflections, analysis, and interpretation of the learning outcome assessment and data.

We have shared the assessments and improvement plans with our department during at Math Retreats on January 19, 2023.

Mathematics faculty members completed inputting the data for Student Learning Outcome #1 and Student Learning Outcome #2 in Spring 2023.

The mathematics faculty members will share Student Learning Outcome information and improvement plans at Math Retreats on August 10, 2023. We will discuss Student Learning Outcomes and their effectiveness at our next department retreat. The Mathematics Department will make modifications to Student Learning Outcomes when necessary.

c. Please summarize recommendations and/or accolades that were made within the program/department.

As a department, we have collaborated on assessment and have had many positive discussions on Student Learning Outcomes at Math Retreats in January 2023. Our department already had plans and discussions about Student Learning Outcome #3 and Student Learning Outcome #4 for Fall 2023. Below are Student Learning Outcomes #3 and #4.

Student Learning Outcome #3 - Students will demonstrate the ability to interpret and draw inferences from mathematical models such as formulas, graphs, and tables.

Student Learning Outcome #4 - Students will demonstrate the ability to Create and analyze mathematical models of real world and/or theoretical situations, including the implications and limitations of those models.

d. Please review and attach any _changes_ to planning documentation, including PLO rubrics, associations, and cycles planning.

We have changed the CSLOs to match the Program SLOs. In doing so, we have simplified the assessment process while providing a more accurate mapping between the CSLOs and PLOs. We assessed PLO #1 and #2 in Fall 2022 and We will assess PLO #3 and PLO #4 in Fall 2023.

Below are the rubrics for grading the PLOs

PLO #1: Utilize a variety of problem-solving techniques and strategies to identify, analyze and solve problems.

4 Complete	3 Satisfactory	2 Basic	1 No
Perfect understanding, makes no errors	Good understanding, errors do not distract	Poor understanding, errors are distracting	No understanding evident

PLO #2: Represent mathematical information symbolically, graphically, numerically, and in writing;

4 Complete	3 Satisfactory	2 Basic	1 No
Perfect understanding, makes no errors	Good understanding, errors do not distract	Poor understanding, errors are distracting	No understanding evident

PLO #6: Use appropriate technologies to analyze and solve mathematical problems.

Rating 2 = Meets Expectation(s)	Rating 1 =Does not meet expectation(s)
• Student's answer is 100% correct. • Obtains the correct answer using the calculator / technology.	• Student's answer has 1 or more errors. • Does not obtain the correct answer using the calculator/technology.

Distance Education (DE) Modality Course Design Peer Review Update (Please attach documentation extracted from the *Rubric for Assessing Regular and Substantive Interaction in Distance Education Course*s)

   a. **Which courses were reviewed for regular and substantive interactions (RSI)?**

   The Mathematics Department has not reviewed any DE courses yet for regular and substantive interactions. On May 2023, the Senate approved the *Distance Education Peer Review Process*. The next step is to begin the training for peer reviewers. The training requires prospective peer reviewers to complete the *Technology and Pedagogical Readiness* training module, which takes about 30 hours and the first Cohort started on June 5, 2023. Currently, the training module is on Canvas and set up for cohorts. In the future more training cohorts in Spring 2024 and cohorts in Fall 2024 will be offered.

b. What were some key findings regarding RSI?

The Mathematics Department has not reviewed any DE courses yet for regular and substantive interactions. Currently two faculty members (Eui Chung and Chris Eachus) are taking the course for Distance Education Peer Review Training in summer 2023 (6 weeks course). Some other math faculty members already signed up for Distance Education Peer Review Training for Spring 2024 and Fall 2024.

- **Some strengths:**
  No data yet.

- **Some areas of possible improvement:**
  No data yet.

c. What is the plan for improvement?

The Mathematics Department has not reviewed any DE courses yet for regular and substantive interactions. Currently some of math faculty members are taking 6-week course (the new 30-hour Technology and Pedagogical Readiness training module) for Distance Education Peer Review Training in summer 2023 to be a Peer Reviewer.

CTE two-year review of labor market data and pre-requisite review

a. Does the program meet documented labor market demand?

N/A

b. How does the program address needs that are not met by similar programs?

N/A

c. Does the employment, completion, and success data of students indicate program effectiveness and vitality? Please, explain.

N/A

d. Has the program met the Title 5 requirements to review course prerequisites, and advisories within the prescribed cycle of every 2 year for CTE programs and every 5 years for all others?

N/A

e. Have recommendations from the previous report been addressed?

N/A

Use the tables below to fill in **NEW** resources and planning initiatives that **do not apply directly to core topics.** *This section is only used if there are new planning initiatives and resources requested.*

New Program Planning Initiative – Yearly Planning Only	
Title:	Increase district funding to hire additional student tutors for the Math Center
Planning years:	Year 2023-2024

Description:

The mathematics department seeks a permanent augmentation to the Math Center budget for more funding for tutors and facilitators. Every year we submit a budget augmentation; however, due to the budget situation our request has not been fully granted.

Resources:

Priority Level: Low   Medium   *__High__*

Resource Type: Equipment   *__Staff__*   Faculty   Supplies and Materials

Quantity: Many

Per Item Price: To Be Determined   **Price with taxes/shipping, etc:** To Be Determined

Description: Student tutors and facilitators in Math Center

New Program Planning Initiative – Yearly Planning Only	
Title:	Purchase computer and other needed equipment for a second computerized classroom.
Planning years:	Year 2023-2024 to 2024-2025

Description:

The mathematics department has been in need of a second computerized classroom. The initial request was made in 2008. This will allow us to offer classes that require computers without affecting the current computer lab space (M-201).

We have requested the Health Science computer lab to use at times. Also, we have used O-112 at times, but that is always limited. We have the lap-tops in M-438 but the cart is difficult to move elsewhere.

Resources:

Priority Level: Low   Medium   _**High**_

Resource Type: _**Equipment**_ Staff   Faculty   Supplies and Materials

Quantity: 1

Per Item Price: To Be Determined   **Price with taxes/shipping, etc:** To Be Determined

Description: Classroom

New Program Planning Initiative – Yearly Planning Only	
Title:	Math Center needs a larger space.
Planning years:	Year 2023-2024 to 2025-2026

Description:

The Math Center needs a larger space due to the fact that it cannot accommodate all the students during the peak hours. Math Center needs to be relocated to a larger facility, such as the replacement for M-400, as campus construction allows.

Resources:

Priority Level: Low   Medium   *High*

Resource Type: *Equipment* Staff   Faculty   Supplies and Materials

Quantity: 1

Per Item Price: To Be Determined   **Price with taxes/shipping, etc:** To Be Determined

Description: Building for Math Center (Facility)

New Program Planning Initiative – Yearly Planning Only	
Title:	Replace the M-400 building
Planning years:	2023-2024 to 2025-2026

Description:

The M-400 building is slated to be a priority project in the current draft of the new facilities master plan. We need to replace the M-400 building as soon as possible. The department will continue to seek improvement of the M-400 facilities. As an intermediate solution, serious updates should be undertaken in the areas of HVAC, lighting, and sound control.

Resources:

Priority Level: Low   Medium   _**High**_

Resource Type: _**Equipment**_ Staff   Faculty   Supplies and Materials

Quantity: 1

Per Item Price: To Be Determined   **Price with taxes/shipping, etc:** To Be Determined

Description: Building