Welcome to Program Review

College of Alameda - 2019

MATH - Instruction

Program Review

Program Overview

Please verify the mission statement for your program. If your program has not created a mission statement, provide details on how your program supports and contributes to the College mission.

It is the Mission of College of Alameda to serve the educational needs of its diverse community by providing comprehensive and flexible programs and resources that empower students to achieve their goals. Mission statement: The COA Mathematics department strives to inspire learners to build mathematical skills, make connections [between mathematics and the world], and contribute to society.

Program Total Faculty and/or Staff

Full Time

Deidre Baker
Khalilah Beal-Uribe
Richard Kaeser
Vanson Nguyen

Part Time

Elena Ivanova
Emmanuel Herrera
Gerald Morgan
Elyus Gwin
Norman Nemzer
Fanching Kuo
Gina Karunaratne
Wilbur Newball
Kyla Oh
Christopher Wu
Farzan Riazati
Bahij Hanhan
Michael Ghiselli
Mark Rinker
Chad-Eric Montgomery
Deidre Baker
Farzan Riazati
Khalilah Beal-Uribe
Nadiezhda Hernandez Bonilla
Philip Bui
Richard Kaeser
Valerie Broxholm
Vanson Nguyen
Wilbur Newball

The Program Goals below are from your most recent Program Review or APU. If none are listed, please add your most recent program goals. Then, indicate the status of this goal, and which College and District goal your program goal aligns to. If your goal has been completed, please answer the follow up question regarding how you measured the achievement of this goal.

Assess all courses and increase participation of faculty to improve instruction through the process of SLO assessment.

Status

In-Progress

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

College Goal

Advance CoA teaching and learning

District Goal

Strengthen Accountability, Innovation and Collaboration

Attend professional development activities to address low success rates in African-American and Latino students. Improve hybrid course offerings with appropriate hardware and software.

Status

In-Progress

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

College Goal

Increase retention and persistence rates

District Goal

Advance Student Access, Equity, and Success

Attend, participate and present at local conferences about teaching and teaching mathematics. Develop relationships with high school teachers to learn about common core curriculum and brainstorm other innovative programs.

Status

In-Progress

If Completed, What evidence supports completion of this goal? How did you measure the achievement of this goal?

College Goal

Increase access to college programs/coursework through collaboration with other PCCD colleges in redesigning college schedules & offerings

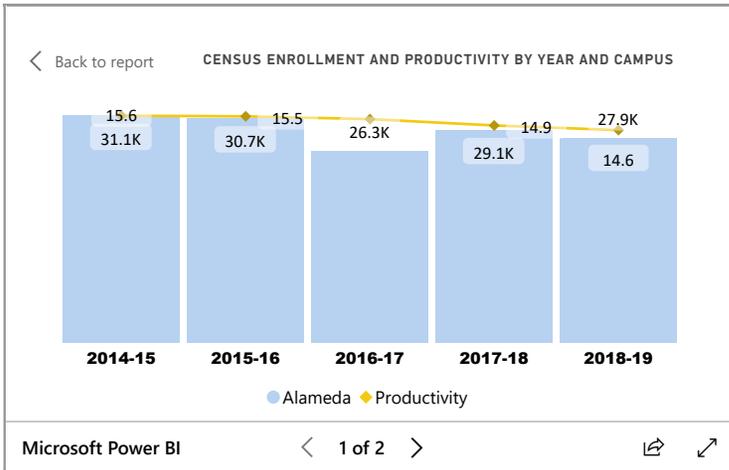District Goal

Build Programs of Distinction

Describe your current utilization of facilities, including labs and other space

The math department uses general classrooms and some courses use computer labs. The department also works with the Math Lab for tutoring. There are offices for full-time faculty, but not space designated for Math PT faculty.
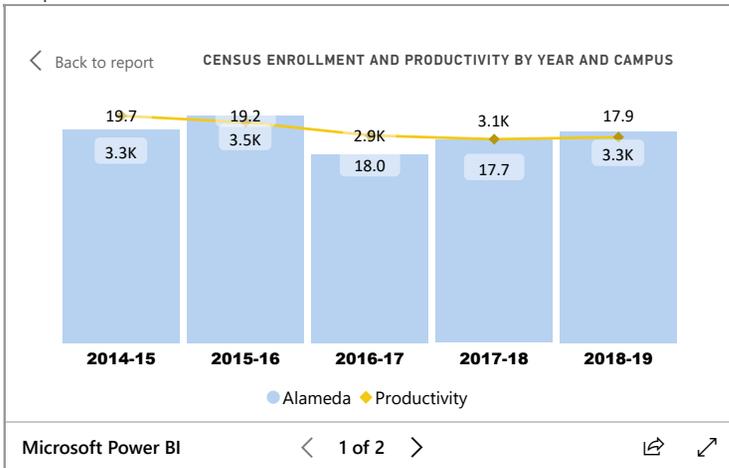
Enrollment Trends

College Level - Program and Department comparison

○
Chart

‹ Back to report — CENSUS ENROLLMENT AND PRODUCTIVITY BY YEAR AND CAMPUS

15.6
31.1K

15.5
30.7K

26.3K

14.9
29.1K

27.9K
14.6

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |

● Alameda ◆ Productivity

Microsoft Power BI   ‹ 1 of 2 ›

○
Compare

‹ Back to report — CENSUS ENROLLMENT AND PRODUCTIVITY BY YEAR AND CAMPUS

19.7
3.3K

19.2
3.5K

2.9K
18.0

3.1K
17.7

17.9
3.3K

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |

● Alameda ◆ Productivity

Microsoft Power BI   ‹ 1 of 2 ›

Using the Enrollment Trends dashboard filter to your college and subject area. Reflect on the enrollment trends over the past three years. How does the enrollment trend for your program compare to the overall college trend? What factors could be attributing to this trend?

Over the past 5 years, there has been a fluctuation of FTES with a slow increase of FTES over the past 3 years and declining productivity.
Although enrollment has declined across the district within the last two years, mathematics continues to be required for Associate's Degrees, CSU transfer and Intersegmental General Education Transfer Curriculum (IGETC). Additionally, Math is a prerequisite for several science courses. As a result, demand for mathematics continues to be high. Math 13 Introduction to Statistics, is the math transfer requirement for non-STEM majors and has the most offerings.
 New activated courses were offered recently: Math 15 - Math for Liberal Arts, and Math 16A Calculus for Business, Life and Social Sciences. Only Math 16A had enough students to run while the Math 15 offerings were cancelled due to low enrollment.

Describe effective and innovative teaching strategies used by faculty to increase student learning and engagement.

Project based learning and collaborative learning are used in the classroom; this type of pedagogy engages students with curricular content and makes the student the center of the learning process. Instructors also engage students by incorporating the use of technology (Canvas, video creation, Desmos, My Open Math, My Math Lab, Mathematica, Raspberry Pi) in instruction. The district sent a team of math faculty to the Equity Academy for Critical Competencies from all four colleges with two representatives from the College of Alameda.

How is technology used by the discipline, department?

Technology is used in the classroom in several ways: online course management system (Canvas), online homework through Pearson My Math Lab and My Open Math, Desmos and Texas Instruments graphing calculators provide real-time graphing and statistical functionality. Calculus and Differential Equation students also learn Mathematica for introductory programming, graphing, and computation. More courses are being offered in hybrid format with no sections being offered fully online. The department worked with a Zero-Textbook Cost grant to reduce costs for students incorporating faculty generated videos to assist student learning and other OER materials such as OpenStax and My Open Math. This change has lasted beyond the grant.

How does the discipline, department, or program maintain the integrity and consistency of academic standards with all methods of delivery, including face to face, hybrid, and Distance Education courses?

Instructors use several modes of assessment and instruction to ensure consistency and integrity. Some of these include: group presentations, discussion boards, quizzes and exams with pooled questions, non-test bank questions on quizzes and exams, time limits on certain assessments. Instructors also hold online and face-to-face office hours. Also, some hybrid courses use a flipped classroom model where some of the homework is watching videos of content, writing reflections on the content and then coming to class with structured activities on the videos.

The department uses the same course outline of record. The expectations in Distance Education (DE) are no different than face-to-face: delivery is different, but students are still required to do homework, take tests, quizzes and finals; there is no disparity in this sense. With the new DE coordinator, guidelines have been provided to determine effective contact hours. The math department has implemented these guidelines in their classes and through evaluations.

In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.

Improvement Actions

Improvement Action

Improvement Action

Action Item	Description	To be completed By	Responsible Person

Resource Request

Technology and Equipment　　　　　　　　New

Description/Justification
A classroom set of laptops and cabinet for storing laptops.

Estimated Cost

20000

Resource Request

Professional Development　　　　　　　　Department-wide PD needed

Description/Justification
Funding to keep abreast of trends and best practices in teaching co-req DE courses.

Estimated Cost

3000

Resource Request

Technology and Equipment　　　　　　　　New

Description/Justification
Embedded tutors to assist with calculators, excel and other mathematics review.

Estimated Cost

15000

Curriculum

Please review your course outlines of record to determine if they have been updated or deactivated in the past three years. Use the pull-down menus to identify courses that still need updating or deactivation and specify when your department will update each one, within the next three years.

Name	Last updated date	Semester and Year	To be updated on	To be deactivated on
MATH 015 - Mathematics / For Libe...	October, 04 2019 13:47:34	Semester Select Year...		
MATH 049 - Independent Study in ...	August, 21 2019 10:48:40	Fall Select Year...	10/1/2020 Improve my program	

MATH 225 - Mathematics for Techni...   September, 20 2019 22:29:58

MATH 012 - Symbolic Logic   September, 20 2019 22:08:46   10/1/2020

                                                                    Improve my program

MATH 016A - Calculus for Business ...   September, 20 2019 22:10:09

MATH 003C - Calculus III   September, 20 2019 22:06:21   2/27/2020

                                                                    Improve my program

MATH 003A - Calculus I   September, 20 2019 22:05:22

MATH 206 - Algebra for Statistics   October, 03 2019 16:02:01

MATH 510 - Math for Career and Te...   September, 23 2019 10:22:15

MATH 230 - Elementary and Interm...   September, 20 2019 22:29:38

MATH 003B - Calculus II   October, 03 2019 12:43:38

MATH 015 - Mathematics for Liberal...   October, 03 2019 13:05:25

MATH 003F - Differential Equations	October, 03 2019 12:53:42
MATH 011 - Discrete Mathematics	September, 20 2019 22:37:11
MATH 521 - Algebra 1 Review	October, 03 2019 16:15:41
MATH 001 - Pre-Calculus	September, 20 2019 22:35:05
MATH 050 - Trigonometry	September, 20 2019 22:28:52
MATH 013 - Introduction to Statistics	September, 20 2019 22:38:04
MATH 002 - Pre-Calculus with Analy...	September, 20 2019 22:35:20
MATH 201 - Elementary Algebra	October, 03 2019 15:51:24
MATH 203 - Intermediate Algebra	September, 20 2019 22:33:06
MATH 250 - Arithmetic	October, 03 2019 16:13:59

MATH 003E - Linear Algebra	September, 20 2019 22:36:39	
MATH 253 - Pre-Algebra	September, 23 2019 10:21:05	
MATH 202 - Geometry	October, 03 2019 15:52:34	10/1/2020
		State Initiatives (Guided Pathways etc.)
MATH 213 - Support for Statistics	September, 23 2019 10:03:30	
MATH 215 - Support for Pre-Calculus	September, 23 2019 10:04:32	
MATH 216 - Support for Trigonometry	September, 23 2019 09:58:44	

Please summarize your plans for curriculum improvement/development, including details on specific courses or programs you plan to improve/develop.

New courses added: Math 213 â€" Statistics Support, Math 215 - Precalculus Support, and Math 216 - Trig Support are all new co-requisite courses for transfer level math courses. These courses create a pathway for students to enroll directly into transfer level mathematics as well as be compliant with AB705. Math 510 - Math for CTE and Math 521 Algebra I Review.
 Recently updated COORs: Math 1, 3A, 3B, 3C, 3E, 3F, 11, 13, 16A, 50, 201, 203, 225, 250, 253. The courses had updated SLOâ€™s and textbooks including OER options. Need to be updated: 3C, 12, 49, 202 The following courses will be discussed as to whether activation, deactivation or inactivation is appropriate: 2.
Recently activated courses include Math 11, 15 and 16A.
Updated CB23/24 for most courses.

In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.

Improvement Actions

Choose your Action

Instruction - Assessment

Student Learning Outcomes Assessment

List your Student Learning Outcomes. SLOs are specific, measurable statements of what students will know, be able to do, or be able to demonstrate when they complete a course. An SLO focuses on specific knowledge, attitudes, or behaviors that students will demonstrate or possess as a result of instruction.

Course	Student Learning Outcomes (SLO)	Last date Assessed	Planned Assessment Date	Attachments
MATH 015 - Mathematics / For Liberal Arts Students	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem. (Proof and Deductive Reasoning skills)			
MATH 015 - Mathematics / For Liberal Arts Students	Students will identify weaknesses in their math skills and take the initiative-- in advance of the delivery of concepts-- to overcome their weaknesses. (Time management skills.)			
MATH 015 - Mathematics / For Liberal Arts Students	Understand the importance of patterns in mathematics and the ability to search for them and to draw inferences from them			
MATH 225 - Mathematics for Technicians	Student will be able to compute basic arithmetic calculations in everyday and vocational situations and manipulate algebraic formulas to solve equations.			
MATH 225 - Mathematics for Technicians	Develop problem solving abilities: Synthesize data , translate words into math language, and construct an abstract model that describes the problem			
MATH 225 - Mathematics for Technicians	Students will display the proper time management skills to be successful in this and future math courses.			

MATH 225 - Mathematics for Technicians	Given a rate—a relationship between 2 elements — students will be able to construct a proportion to calculate desired new quantities.
MATH 012 - Symbolic Logic	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem.
MATH 012 - Symbolic Logic	Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 012 - Symbolic Logic	Students will be to write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)
MATH 016A - Calculus for Business & the Life & Social Sciences	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem
MATH 016A - Calculus for Business & the Life & Social Sciences	Analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 016A - Calculus for Business & the Life & Social Sciences	Write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)

MATH 003C - Calculus III	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem.(Proof and Deductive Reasoning skills)
MATH 003C - Calculus III	Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 003C - Calculus III	Students will be to write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)
MATH 003A - Calculus I	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem.
MATH 003A - Calculus I	Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 003A - Calculus I	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem
MATH 206 - Algebra for Statistics	Formulate questions that can be addressed with data, then collect, organize, display, and analyze relevant data to address these questions and communicate results

MATH 206 - Algebra for Statistics

Develop simple experiments and sampling plans related to a given situation and goal and analyze their validity.

MATH 206 - Algebra for Statistics

Demonstrate numerical, algebraic and geometric reasoning skills required to carry out statistical analysis.

MATH 206 - Algebra for Statistics

Construct, apply and interpret mathematical models, including linear and exponential functions, that represent relationships in quantitative data.

MATH 510 - Math for Career and Technical Education

Interpret industry-specific problems.

MATH 510 - Math for Career and Technical Education

Apply math skills to solve industry-related problems.

MATH 230 - Elementary and Intermediate Algebra for Business or STEM majors

Solve equations (linear and non-linear) involving at least two of the following: fractions, decimals, parentheses, and like terms for a variable. Non-linear equations include quadratic, exponential, logarithmic, absolute value, radical, rational, etc.

MATH 230 - Elementary and Intermediate Algebra for Business or STEM majors

Formulate a model (either linear or quadratic or exponential) of a real world application. Interpret the key characteristics of the graph (slope, y-intercept, vertex, intercepts, maximum value, minimum value, asymptotes, growth rate, decay rate, etc.) in the context of the application.

MATH 230 - Elementary and Intermediate Algebra for Business or STEM majors

Create a linear graph based on given attributes of a line (e.g., two points, slope and point, slope and y-intercept, etc). Identify key characteristics of a given linear graph (e.g. slope, y-intercept, x-intercept, etc). (NOTE: include scaling, table, define variables, etc).

MATH 003B - Calculus II	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem.(Proof and Deductive Reasoning skills)
MATH 003B - Calculus II	Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 003B - Calculus II	Students will be to write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)
MATH 015 - Mathematics for Liberal Arts Students	Compute, with sophisticated formulas, such quantities as interest payments for amortized loans.
MATH 015 - Mathematics for Liberal Arts Students	Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 015 - Mathematics for Liberal Arts Students	Students will be to write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)
MATH 003F - Differential Equations	Develop problem solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem.(Proof and Deductive Reasoning skills)

MATH 003F - Differential Equations	Given data, will be able to analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 003F - Differential Equations	Will be able to write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)
MATH 011 - Discrete Mathematics	Develop problem-solving abilities: Synthesize data, translate words into math language, and construct an abstract model that describes the problem.
MATH 011 - Discrete Mathematics	Given data, students will analyze information, and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content. (Graphing)
MATH 011 - Discrete Mathematics	Students will be to write and manipulate complex algebraic expressions and general functions, and be able to differentiate and integrate algebraic and transcendental functions. (Compute, Simplify, and Solve)
MATH 521 - Algebra 1 Review	Solve equations using algebraic properties
MATH 521 - Algebra 1 Review	Graph multiple functions including linear, quadratic, exponential and systems of equations
MATH 521 - Algebra 1 Review	Using data and mathematics to model equations or relationships between variables.

MATH 001 - Pre-Calculus	Apply transformations to the graphs of functions and relations;
MATH 001 - Pre-Calculus	Recognize the relationship between functions and their inverses graphically and algebraically;
MATH 001 - Pre-Calculus	Analyze real world applications
MATH 050 - Trigonometry	Compute values of the six basic trigonometric functions
MATH 050 - Trigonometry	Graph and apply transformations to the six basic trigonometric functions
MATH 050 - Trigonometry	Analyze real world applications
MATH 013 - Introduction to Statistics	Interpret measures of central tendency, variation, and position of data sets
MATH 013 - Introduction to Statistics	Compute and interpret probabilities using normal and t-distributions.
MATH 013 - Introduction to Statistics	Analyze hypothesis tests.
MATH 002 - Pre-Calculus with Analytic Geometry	Apply transformations to the graphs of functions and relations
MATH 002 - Pre-Calculus with Analytic Geometry	Recognize the relationship between functions and their inverses graphically and algebraically
MATH 002 - Pre-Calculus with Analytic Geometry	Analyze real world applications
MATH 201 - Elementary Algebra	Solve linear equations involving two variables

MATH 201 - Elementary Algebra	Analyze real world applications.
MATH 201 - Elementary Algebra	Represent linear relationships between two variables graphically, numerically, symbolically, and verbally.
MATH 203 - Intermediate Algebra	Analyze real world applications.
MATH 203 - Intermediate Algebra	Solve quadratic, radical, rational, and absolute value equations.
MATH 203 - Intermediate Algebra	Represent linear relationships between two variables graphically, numerically, symbolically, and verbally.
MATH 203 - Intermediate Algebra	Apply Logarithmic and Exponent Rules to simplify expressions.
MATH 250 - Arithmetic	Apply order of operations to simplify and evaluate expressions
MATH 250 - Arithmetic	Understand and use fractions, decimals, and percentages
MATH 250 - Arithmetic	Analyze Real World Problems
MATH 003E - Linear Algebra	Solve systems of equations using various methods appropriate to lower division linear algebra.
MATH 003E - Linear Algebra	Calculate the dimensions of subspaces associated with linear transformations.
MATH 003E - Linear Algebra	Analyze real world applications involving eigenvectors and eigenvalues.
MATH 253 - Pre-Algebra	Apply order of operations to simplify and evaluate expressions

MATH 253 - Pre-Algebra	Understand and use fractions, decimals, and percentages
MATH 253 - Pre-Algebra	Analyze real world problems
MATH 253 - Pre-Algebra	Solve one-variable linear equations
MATH 202 - Geometry	Draw and label figures using spatial reasoning and symmetry.
MATH 202 - Geometry	Write the converse, inverse, and contrapositive of basic logical statements.
MATH 202 - Geometry	Analyze real world applications
MATH 213 - Support for Statistics	Formulate questions that can be addressed with data, then organize, display, and analyze relevant data to address these questions and communicate results.
MATH 213 - Support for Statistics	Apply numerical and algebraic reasoning and computational skills to support statistical analysis.
MATH 213 - Support for Statistics	Construct, use, and interpret mathematical models, specifically linear functions to represent and communicate relationships in quantitative data.
MATH 215 - Support for Pre-Calculus	Apply transformations to the graphs of functions and relations;
MATH 215 - Support for Pre-Calculus	Recognize the relationship between functions and their inverses graphically and algebraically;

MATH 215 - Support for Pre-Calculus	Analyze real world applications
MATH 216 - Support for Trigonometry	Compute values of the six basic trigonometric functions
MATH 216 - Support for Trigonometry	Graph and apply transformations to the six basic trigonometric functions
MATH 216 - Support for Trigonometry	Analyze real world applications

How has your department worked together on assessment? Provide examples on collaboration, leadership, planning exercises, and data analysis. What aspects of assessment work went especially well in your department and what improvements are most needed?

The department has recently revived the SLO committee, one major purpose being for SLOâ€™s to improve instruction. New this year is evaluating data, documenting faculty reflections and sharing with the department.

What were the most important things your department learned from assessment? If implementation of your action plans resulted in better student learning and/or changes in curriculum, detail the results

Improvement 1. Utilize group work to increase student engagement in classroom
Improvement 2. Focus on struggling students
Improvement 3. Spend more time reviewing
Improvement 4. Spend time going over best practices for study habits

Give us an update on your Program Learning Outcomes (PLOs). A complete program assessment means all PLOs have been assessed for that program. Attach any evidence, i.e. reports from Task Stream or Curricunet Meta.

None

Does your department participate in the assessment of multidisciplinary programs?
No

If Yes, Describe your department's participation and what you learned from the assessment of the program that was applicable to your own discipline.

Does your department participate in your college's Institutional Learning Outcomes (ILOs) assessment?
No

If Yes, Please describe your departments participation in assessing Institutional Learning Outcomes.

SLO's are mapped to ILO's and, consequently, are assessing both at the course and institutional level. This secondary impact is the only extent the department is participating in the assessment of ILOs.

What support does your department need from administrators, assessment coordinators and/or your campus assessment committee to continue to make progress in assessment of outcomes and implementation of action plans?

Stipends for PT faculty, accessible training for faculty to use Curricunet meta.

In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.
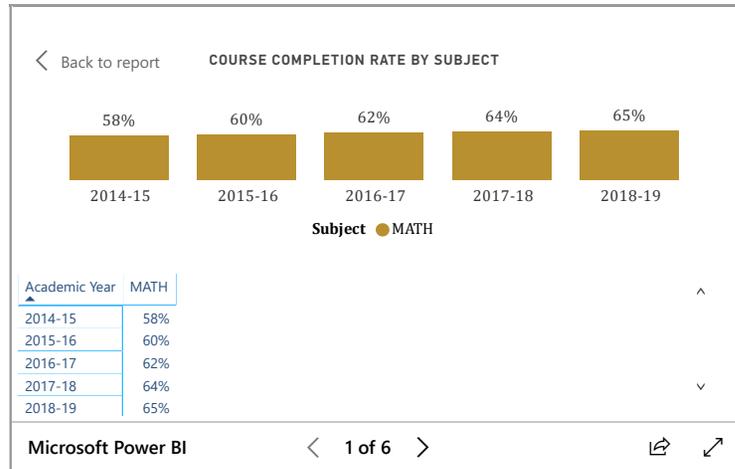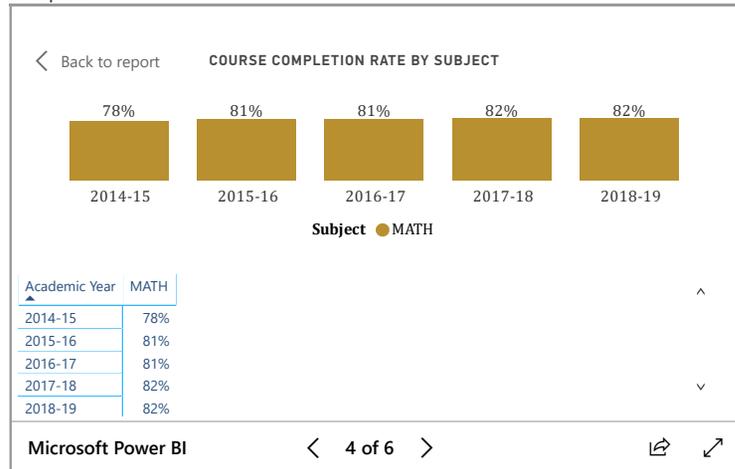
Choose your Action

Improvement Actions

Course Completion
College Level - Program and Department comparison

◉
Chart

Back to report   COURSE COMPLETION RATE BY SUBJECT

58%	60%	62%	64%	65%
2014-15	2015-16	2016-17	2017-18	2018-19

Subject ● MATH

Academic Year	MATH
2014-15	58%
2015-16	60%
2016-17	62%
2017-18	64%
2018-19	65%

Microsoft Power BI   ‹ 1 of 6 ›

○
Compare

Back to report   COURSE COMPLETION RATE BY SUBJECT

78%	81%	81%	82%	82%
2014-15	2015-16	2016-17	2017-18	2018-19

Subject ● MATH

Academic Year	MATH
2014-15	78%
2015-16	81%
2016-17	81%
2017-18	82%
2018-19	82%

Microsoft Power BI   ‹ 4 of 6 ›

Consider your course completion rates over the past three years (% of student who earned a grade of "C" or better).

Name	2016 - 17 Completion Rate (%)	2017 - 18 Completion Rate (%)	2018 - 19 Completion Rate (%)
MATH 1 PRE-CALCULUS	58	76	73
MATH 13 INTRO TO STATISTICS	68	71	66
MATH 2 PRECALCULUS/GEOMETRY	72		

MATH 201 ELEMENTARY ALGEBRA	57	53	43
MATH 202 GEOMETRY	74	50	
MATH 203 INTERMEDIATE ALGEBRA	58	57	61
MATH 206 ALGEBRA FOR STATISTICS	76	72	72
MATH 213 Support for Statistics		79	67
MATH 225 MATH FOR TECHNICIANS	63	86	71
MATH 230 Elementary & Intermed Algebra		38	37
MATH 250 ARITHMETIC	50	56	38
MATH 253 PRE-ALGEBRA	56	60	50
MATH 3A CALCULUS I	61	52	68
MATH 3B CALCULUS II	72	79	70
MATH 3C CALCULUS III	80	100	91
MATH 3E LINEAR ALGEBRA	64	86	88
MATH 3F DIFFERENTIAL EQUATIONS	84	82	72
MATH 49 I/S - MATHEMATICS		100	
MATH 50 TRIGONOMETRY	50	55	65

Use the filters on the top and right of the graphs to disaggregate your program or discipline data. When disaggregated, are there any groups whose course completion rate falls more than 3% points below the discipline average? If so, indicate yes and explain what your department is doing to address the disproportionate impact for the group.

Age
- ○ Yes
- ◉ No

Ethnicity
- ○ Yes
- ◉ No

Gender
- ○ Yes
- ◉ No

Foster Youth Status
- ○ Yes
- ◉ No

Disability Status
- ○ Yes
- ◉ No

Low Income Status
- ○ Yes
- ◉ No

Veteran Status
- ○ Yes
- ◉ No

Consider your course completion rates over the past three years by mode of instruction. What do you observe?

Select Course

	2016 - 17 Completion Rate (%)	2017 - 18 Completion Rate (%)	2018 - 19 Completion Rate (%)
Face-to-Face			
Hybrid			
100% Online			
Dual Enrollment			
Day time			
Evening			

How do the course completion rates for your program or discipline compare to your college's Institution-Set Standard for course completion?

The overall success rates for math over the past 3 years have ranged from the low to mid 60â€™s. This is within 10 percentage points of the college averages over the same period of time and have been congruent with the collegeâ€™s overall upward trend of completion rates.

How do the department's Hybrid course completion rates compare to the college course completion standard?

Hybrid course completion rates were 67% in the 18-19 academic year. This is slightly higher than the overall Math completion rates and within 10 percentage points of the college average.

Are there differences in course completion rates between face to face and Distance Education/hybrid courses? If so, how does the discipline, department or program deal with this situation? How do you assess the overall effectiveness of Distance Education/hybrid course?

Hybrid course completion rates are slightly higher than face-to-face. This may be because some of the hybrid offerings are of math courses later in the sequence where students are close to transfer and have different motivation and student skills than in entry-level transfer courses where the highest frequency of face-to-face courses are offered. With the new DE coordinator, guidelines have been provided to determine effective contact hours. The math department has implemented these guidelines in their classes and through evaluations.

Describe the course retention rates over the last three years. If your college has an Institution-Set Standard for course retention, how does your program or discipline course retention rates compare to the standard?

The math department's retention rates over the past 5 years are slightly higher than the college's rates over the same time period. This is a great result as students are sticking through to the end of courses, indicating that students have more hope to complete the course successfully.

What has the discipline, department, or program done to improve course completion and retention rates?

Professional development for faculty, assess student learning outcomes, evaluate faculty, and creation of support courses.

In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.

Improvement Actions

Improvement Action

Improvement Action

Action Item	Description	To be completed By	Responsible Person

Resource Request

Professional Development   Department-wide PD needed

Description/Justification   Estimated Cost
Monies for conferences, trainings and workshops   3000

Resource Request

Technology and Equipment   New

Description/Justification
Classroom set of laptops and storage area for laptops.

Estimated Cost

20000

Resource Request

Personnel

Student Worker

% Time

60

Description/Justification
Embedded tutors

Estimated Annual Salary Costs

15000

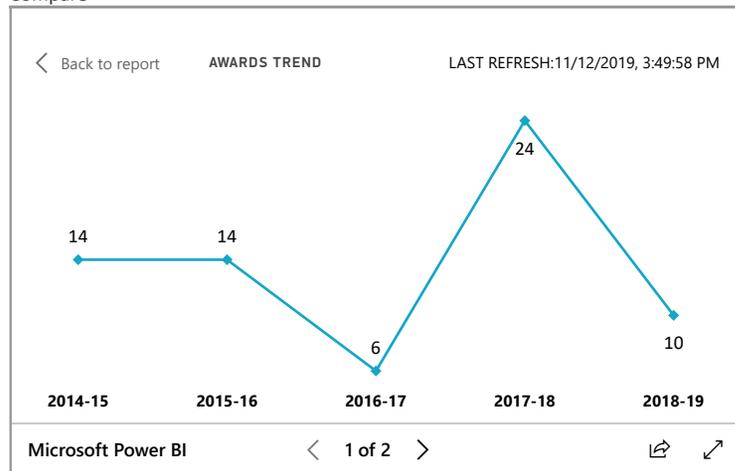Estimated Annual Benefits Costs

Total Costs

15000

Degrees and Certificates

College Level - Program and Department comparison

Chart
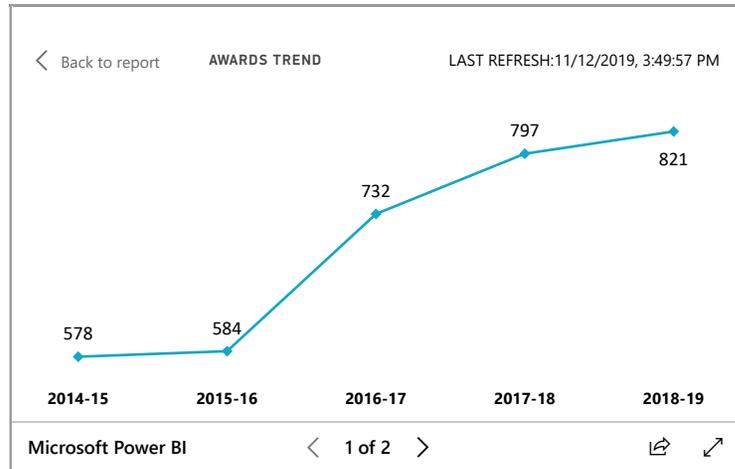
Compare

What has the discipline, department, or program done to improve the number of degrees and certificates awarded? Include the number of degrees and certificates awarded by year, for the past three years.

Over the years, the number of degrees awarded have fluctuated from. Many AA/AS degrees in Math are awarded to students who do not major in mathematics for their bachelorâ€™s degree.
Engineering and Physics majors take enough mathematics to fulfill the Math Associateâ€™s Degree. The number of students who complete the Math Associateâ€™s Degree and do not pursue Math majors after transfer is unknown.

Over the next 3 years, will you be focusing on increasing the number of degrees and certificates awarded?

Yes

What is planned for the next 3 years to increase the number of certificates and degrees awarded?

The department has continued offering of hybrid and zero-cost versions of courses that meet degree requirements (Math 3A and up). Faculty have also advised students who complete multiple high level math courses for transfer to pursue a degree in mathematics because they have so little left to do to earn the degree. An additional section of Math 3E is offered each year increasing the offerings to one per regular semester.
The math department has been active with Guided Pathways. One of the major outcomes was to develop two and three-year pathways for students looking to complete the Math Associate's Degree for Transfer (ADT). These pathways include starting points of Math 3A - Calculus I, Math 1/50 - Precalculus/Trigonometry and Math 1/50 with or without support (215 and 216 respectively). These pathways are designed to be suggested road maps for students to give clarity on possible scheduling. Over the next three years, the department will work collaboratively with students, staff and counseling to create and refine pathways towards completing Math degrees. Research suggests these pathway maps may increase the number of degrees earned.

In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.

Improvement Actions   Choose your Action

Engagement

Discuss how faculty and staff have engaged in institutional efforts such as committees, presentations, and departmental activities. Please list the committees that full-time faculty participate in.

The math department has collaborated with the following committees: Starfish pilot, Faculty Diversity Internship Program (FDIP), Institutional Effectiveness Committee, Distance Education Committee, AB705 implementation, Zero-Textbook Cost, Fabrication Laboratory, District Staff Development, ASTI workgroup, District Faculty Senate Workgroup on Faculty Diversity, Academic Senate HSI grant planning, Bridging the Gap, Greater Bay Area Basic Skills Partnership Pilot Program and Outreach.

Discuss how faculty and staff have engaged in community activities, partnerships and/or collaborations.

High School/Community College conversations have occured in Bridging the Gap meetings; the grant has completed and it is unclear whether the conversations will continue. The department has worked regularly with the Alameda Science & Technology Institute (ASTI) on campus to ensure placement of students. Community College/CSU conversations occur with the Greater Bay Area Basic Skills Partnership Pilot Program. The math department also meets with ASTI yearly to discuss placement of their students. Faculty have dual enrollment partnerships with local charter schools.

Discuss how adjunct faculty members are included in departmental training, discussions, and decision-making.

Part-time faculty members are included and participate in department meetings, communities of practice, SLO process, the budget process, curriculum planning, class scheduling and program review.

In the boxes below, please add improvement actions and resource requests that are directly related to the questions answered in this section. If there are no improvement actions or resource requested in this area, leave blank.

Choose your Action

Improvement Actions

Action Plan Summary and New Program Goals
Total Improvement Plans: 2
Total Resource Request: 6

Review, add or modify the following actions plans that were entered in each section. Then review the Program Goals that were marked as in progress. Determine if you would like to keep the in progress goals and draft new 3-year goals for your department or program. The action plan items should support your new program goals. Align your program goals to the college strategic goals and District Strategic Goals.

Section / Head	Description
Instruction	
Enrollment Trends	
	Completed Date
	Annual Progress Update Date
Course Completion	
	Completed Date
	Annual Progress Update Date
Engagement	

New and Continuing Goals

Discipline, Department or Program Goal	College Goal	PCCD Goal
Wide department participation across campus through event planning, committees and other institutional work.	Design organizational, committee, & governance structures to support student success	Strengthen Accountability, Innovation and Collaboration

Resource Request Summary
Total Cost: $76000
Total Resource Request: 6

Instruction
Personnel

Type	% Time	Description/Justification	Estimated Annual Salary Costs	Estimated Annual Benefits Costs	Total Costs
Student Worker	60	Embedded tutors	15000		15000

Sub-Total: $15000

Professional Development

Type	Description/Justification	Estimated Cost
Department-wide PD needed	Monies for conferences, trainings and workshops	3000
Department-wide PD needed	Funding to keep abreast of trends and best practices in teaching co-req DE courses.	3000

Sub-Total: $6000

Technology and Equipment

Type	Description/Justification	Estimated Cost
New	Classroom set of laptops and storage area for laptops.	20000
New	A classroom set of laptops and cabinet for storing laptops.	20000
New	Embedded tutors to assist with calculators, excel and other mathematics review.	15000

Sub-Total: $55000

Supplies
  No Resources found for this category

Facilities
  No Resources found for this category

Library
  No Resources found for this category

Other
  No Resources found for this category

Engagement
Personnel
  No Resources found for this category

Professional Development
  No Resources found for this category

Technology and Equipment
  No Resources found for this category

Supplies
  No Resources found for this category

Facilities
  No Resources found for this category

Library
  No Resources found for this category

Other
  No Resources found for this category

Sign and Submit

Please provide the list of members who participated in completing this program review.

Vanson Nguyen
Khalilah Beal-Uribe
Rich Kaeser
Deidre Baker
All PT faculty invited to give feedback

Please enter the name of the person submitting this program review.

Vanson Nguyen