



# PROGRAM REVIEW

## Instructional Program Review Template

Year :  Plan Type:  Program :

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- Program Information
- Data Analysis
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### 2.1 Enrollment & Fill Rate

Enrollment

Comparing 5-year trends, Mathematics enrollment decreased 8.1% (from 2973 in 2015-2016 down to 2732 in 2019-2020), while District enrollment increased 2.4% (from 25607 in 2015-2016 up to 26209 in 2019-2020).

Mathematics faculty expected enrollment to decline, since, years ago, they began the process of modifying curriculum to allow students to place directly into college-level courses, even prior to the legislative mandate of AB 705. This decrease is viewed as a great indicator of success! Though seemingly paradoxical, the decreased enrollment was primarily in developmental courses (which dropped 94.6% from 1285 in 2015-2016 down to 69 in 2019-2020), with accompanying enrollment growth in transfer-level courses (which grew from 1189 in 2015-2016 up to 2086 in 2019-2020, a 75.4% increase); non-BSTEM students can complete their one degree-applicable mathematics course without the cumbersome requirement of multiple developmental and algebra courses. The number of sections changed drastically, too: developmental and algebra courses decreased from 41 sections in

#### Fill Rate

There are two separate comparisons to consider: (1) Change in fill rate over time, and (2) comparison to District. Since 2015-2016, the District's fill rate has remained steady (70% to 69%); the fill rate in mathematics has dropped from 75% in 2015-2016 (higher than the District's 70%), down to 66% in 2019-2020 (lower than the District's 69%).

Regarding (1) the change over time: some factors that likely contributed to the drop in fill rates in mathematics include:

- \* Pre-transfer level courses had higher-than-District fill rates and are not currently offered:
  - Pathway to Statistics (MATH-102): Hum 103%, DN 71% in 2015-2016
  - Intermediate Algebra (MATH-120): Hum 99%, DN 83% in 2015-2016
  - Intermediate Algebra for Social Sciences (MATH-194): Hum 79%, KT 90% in 2015-2016
  - Elementary Algebra (MATH-380): Hum 88%, KT 100% in 2015-2016

## 2.2 Program Majors

There are 126 students that have declared AST (Associates of Science Transfer) Mathematics and 25 students that have declared LA (Liberal Arts) Mathematics as their programs. This is an increase of over 40% from the last comprehensive plan in 2016-17, when there were 65 and 42 declared students respectively. This is noteworthy because the increase in declared degrees occurs as mathematics enrollments went from 3100 to 2645 (a decrease of approximately 15%). The number of declared majors is higher than expected, but it is consistent with the efforts of the district models of encouraging students to identify and pursue a degree.

The Mathematics Program serves students in all degrees and many certificates, although there are only two degrees available for this program.

## 2.3 Success & Retention

### Success

The success rate for the mathematics program is currently at 67%, which is a five year high and consistent with previous years (67%, 63%, 63%, 60%, 63%), although remaining below the district average of 78%. Mathematics courses across colleges tend to have lower success and retention rates than other courses. This is an area that recent reforms such as acceleration are working to address. The success rate in Humboldt is 67% (a five year high), in Del Norte is 82% (a five year high), in Klamath Trinity is 87% (a five year high), online is 52% and in Pelican Bay is 94%. The success rate in Del Norte, Klamath Trinity and Pelican Bay is higher than the district average.

Acceleration efforts have largely focused on MATH-15 (Elementary Statistics). The success rate of MATH-15 has decreased in the last five years (66%, 63%, 57%, 69%, 73%), however the number of students enrolling in this course has INCREASED over the years too (516, 495, 413, 423, 353). Although students do not have the same success in MATH-15 as they did five years ago,

### Retention

The retention rates for the mathematics program is currently at 87%, which is an increase from 85% five years ago (87%, 89%, 86%, 84%, 85%), although remaining below the district average of 92%. Mathematics courses across colleges tend to have lower success and retention rates than other courses. This is an area that recent reforms such as acceleration are working to address. This is consistent with the increased retention across the district.

The retention rate in Humboldt is 89% (a five year high, equal to last year), in Del Norte is 95% (a five year high), in Klamath Trinity is 93%, online is 75%, and in Pelican Bay is 94%. The retention rate in Klamath Trinity and Pelican Bay is higher than the district average. All of these retention rates, except for online retention, are similar to the district average of 92%. It may be that the online retention rate is so much smaller because of the modality. It will be interesting to compare retention rates from the Fall 2020 and Spring 2021 semester to this baseline rate (since all math courses will be online during the 2020-21 academic year).

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## Persistence & Completion

### 2.4 Persistence

There are 169 student in the Mathematics cohort which consists of all new students who were enrolled in 2017-18 and who completed 9 or more unit in the specified TOP code(s) related to the program. The persistence rate for the mathematics program is 53% (89 students) and remains lower than the district average of 62%.

A student is considered to have persisted if they attempt at least 15 units within the TOP code. The persistence percentage is an increase from the last comprehensive plan (53%, 31%), although the current cohort is considerably smaller (169 students) than it was several years ago (562 students). It is very likely that this decrease in cohort is due to the acceleration efforts since students are able to complete MATH-15 and 15S with only five units, or MATH-5 with only 3 units, well below the 9 unit threshold which defines the cohort. None of the students included in this cohort had earned a degree in mathematics.

## 2.5 Completers

The completion rate for the mathematics program is 19% which is similar to the district average of 17%. There were 31 students that completed a degree/certificate over the last five years that were included in this cohort. It may be that these completers are able to take advantage in the smaller course sizes in the prior pathway to statistics (MATH-102 and MATH-15) or the current MATH-30S (Supported College Algebra). It may be that participating in extra-curricular activities (Pizza & Problems, Integration Bee, Putnam Exam, etc.) provides a rich and supportive learning environment that is enticing to students.

## 2.6 Program Completers

Floor = What is the fewest number of completers in a year that you would find acceptable?

Target = What is the number of degree/cert completers you aspire to have in a year?

Degree/Cert	Floor	Target	
Liberal Arts: Mathematics	5	7	Edit
Mathematics for Transfer, Associate in Science for Transfer	3	5	Edit

**Respond to the data prompt in 2.6**

Last year there were 6 Liberal Arts Degrees in Mathematics awarded, which is above the floor (5) and below the target (7). Last year there were 10 Mathematics for Transfer Degrees awarded (6 from CSU GE, 1 from IGETC CSU) and 3 from IGETC UC). This is greater than the target. In total there were 16 degrees awarded, which is a five year high (16, 8, 9, 9, 9). Although there were fewer Liberal Arts degrees awarded than was targeted, there were more degrees awarded overall than targeted. This increase the number of students that complete a program may be the result of students becoming better informed about the transfer degrees through counseling, advising and faculty interaction. The increase also may be attributed to students able to take transfer-level mathematics courses upon admittance to the college, which would let them complete the program in a shorter amount of time.

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## Student Equity Group Data

### 2.7 Enrollments by group

### Gender

The Eureka mathematic enrollments by gender are within 2 percentage points, and online mathematic enrollments are within 1 percentage point of the district-wide genders. In Del Norte the mathematic enrollments of females is 48% which is greater than the proportion of female students in Del Norte( 37%). In Klamath-Trinity the mathematic enrollments for females is 58% which is less than the the proportion of female student in Klamath-Trinity (68%). Summary: In Eureka and online the proportion of male and female students within the mathematics program are similar to the districts. In Del Norte, there are more females within the program than expected, while in Klamath-Trinity there are fewer females within the program than expected.

### Ethnicity

Generally, the mathematics enrollments by ethnicity are very similar to the District-wide demographic enrollment numbers In Eureka the enrollments for all ethnicities in the mathematics program are within 2 percentage points of the district-wide ethnicities. In Del Norte the enrollments for ethnicities in the mathematics program are within 2 percentage points of the district-wide ethnicities with the exception of Asian (6% in program vs 2% in district), Hispanic/Latino (29% vs 39% in district), and White (36% vs 31% in district). This means that, in Del Norte, the proportion of Asian and White students taking courses is greater than expected while the proportion of Hispanic students taking courses is less than expected. In Klamath Trinity the enrollments for all ethnicities in the mathematics program (that are not zero) are within 2 percentage points of the district-wide ethnicities. Online the enrollments for all ethnicity groups in the mathematics program are within 3 percentage points of the district-wide ethnicities. Summary: The enrollments of mathematics students by ethnicity across Eureka, Del Norte, Klamath-Trinity and Online are similar to college enrollments at these locations. However, there`re fewer Hispanic/Latino students in the mathematics program in Del Norte (29%) than would be expected (39%)--and therefore more Asian and White students than expected.

### Age

Generally in Eureka and Del Norte students are younger (age 18-24) in the mathematics program (73% and 43%) than would be expected across the district (68% and 29%). (This is likely due to dual enrollment students on the Eureka and Del Norte campuses. On the Eureka campus there is a number of Academy of the Redwoods students enrolled in Math courses. Also, with

### DSPS, English & Math

The percentage of mathematics students classified as DSPS students across each location of the district is within 2 percentage points of what is expected across the district. Regardless of the program, the percentage of DSPS student in Klamath-Trinity is greater than the rest of the district (35% vs Eka: 15%, DN: 9%, Online: 9%). English Basic Skills mathematics students are within 3 percentage points of the district-wide placements. Regarding Math Basic Skills mathematics students, all are equal with the district percentages except for Klamath-Trinity. In Klamath-Trinity there are more mathematics students classified as Basic Skills (38%) than would be expected (28%).

### Summary

In Eureka there are fewer older students in the mathematics program than expected and the percentage of older students is less

## 2.8 Success & Retention by group



Success rates for female and male are similar (62% and 63%) but lower than the district rates (74% and 74%) which is consistent with lower success rates in mathematics courses across community colleges.

Retention rates for female and male are similar (81% and 82%) but lower than the district rates (87% and 89%) which is consistent with lower retention rates in mathematics courses across community colleges.

When categorized by age, the success rate in mathematics is lower than the district for all age groups. However, the younger students (age 18-24) have a success rate that is 14 percentage points lower than lower than the district (58% vs. 72%). The retention rate across all age categories is similar.

Regarding ethnicity: the difference in Hispanic/Latino students in mathematics is 18 percentage points below the district average (55% to 73%); the difference in Two or More Races students in mathematics is 17 points below the district average (54% to 71%); the difference between Asian students in mathematics is 12 points below the district average (65% to 77%); and the difference between Black or African American students in mathematics is 12 points below the district average (60% to 72%). For American Indian, Hawaiian/Pacific Islander, and White students in mathematics is 7, 7 and 9 points below the district average. Hispanic/Latino students and students of Two or More Races have the greatest difference in success rates in mathematics. These two groups represent 520 and 239 students respectively.

Since Mathematics courses, like other areas of STEM, across college tends to have lower success and retention than other disciplines it is worth noting differences in success and retention among groups just within our program. In terms of success, Black or African American (55%), Hispanic Latino (57%), Two or More Races, and Unknown Race students who have success rates below 60%, which are lower than success rates of White, Hawaiian Pacific Islander, American Indian and Asian students, which are above 63%. This is an improvement since 2018-19 before AB 705, when success rates of Black or African American was 49% and Hispanic Latino students' success was 51%. Faculty will continue to participate in CAP workshops related to

## Faculty Information

### 2.10 Faculty

The ratio of FTES per FTEF for the mathematics program is 22.0 compared to the district average of 22.2. These are very similar. It would only take an additional 3 FTES in order for these ratios to be the same (or 0.1 fewer FTEF).

The ratio of FTES/FTEF for the has been increasing over the last three years, but it is lower than it was in 2016-17 (22.0, 21.9, 21.3, 24.2).

In the mathematics program 72.3% of the courses are taught by full time faculty as compared to the district average of 41.2%. In 2017 three probationary tenure-track faculty were hired and the full-time percentage increased from 43% the previous year to 54%. In 2017 there were 227 sections of mathematics while last year there were 153.

## CTE/Occupational programs

The following Labor Market section should be completed by all CTE/Occupational programs

### 2.11 Labor Market Data

Refer to the California Employment Development Division:

<http://www.edd.ca.gov>

<http://www.labormarketinfo.edd.ca.gov/>

Provide a narrative that addresses the following:

- a. Documentation of labor market demand
- b. Non-duplication of other training programs in the region
- c. Effectiveness as measured by student employment and program completions

Not applicable

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## Summary of Section 2

Overall, what did you learn from the data provided in this section?

Be sure to indicate if your discoveries apply to the entire district, or if they vary by site.

The reduction in math enrollments is greater than the reduction across the district. The faculty in this program anticipated this years ago when many of the curriculum changes began. It is notable that the reduction in enrollments has not leveled off at this time and remains an item of interest for faculty.

Generally speaking, the program is serving students well. There have been many gains in the last several years including more program majors than five years ago, five-year maximum success rate of the program, and more completers than anticipated. Some of these changes are directly related to curriculum changes in course introduced by faculty and then mandated through AB 705.

The Introduction to Statistics course (MATH-15) is mentioned many times in this document because represents a an important class for students and much effort has gone into modifying this course over the last five years to serve students. MATH-15 is the math course that most students enroll. In 2015-2016, students in MATH-15 had to meet the Intermediate Algebra prerequisite (some by taking MATH-102 Pathway Course). The success rate was 73% and the course cap was n=35 students. In 2019-2020, success rates for MATH-15 overall are lower, but more students are completing MATH-15 than were in the past. Sections that are