

Contents

General Information.....	2
Department Data Sheet	4
Award Data Sheet	5
Course Data Sheet.....	5
Curriculum Analysis.....	10
Goal 1	11
Resource Allocation Requests.....	11
Goal 2	13
Resource Allocation Requests.....	14
Goal 3	15
Resource Allocation Requests.....	16
Submit	17
Dean's Review and Feedback.....	17

Instructional Program Review

General Information

1. Name of department (program) under review.

Mathematics

2. Who is the person(s) submitting the Program Review form?

Lahna VonEpps, Katryn Weston, Melissa Anisko

3. What is the current academic year (i.e. 2022-23)?

2022-2023

4. Please describe the department/program, its staff and faculty, etc.

FT faculty: Lahna VonEpps, Jim Retemeyer, Joe Manlove, Katryn Weston

PT faculty: Margaret Rosasco, Bianca Lopez-Yendluri, Melissa Anisko

Classified professional: Melissa Anisko (Math Lab Instructional Support Specialist)

Math lab student workers: Olivia Marcoccia, Tara Azmoudeh

Transfer level courses offered.

3D print lab

Sequoia is the designated space for Math Lab (120) and classrooms (110, 109, 102).

Math AST is active

5. Please describe how this department's/program's mission relates to the college's [mission](#) and [strategic goals](#).

Mission: Math department has a supportive and engaging learning environment, students master foundational skills, explore their passions, attain degrees and certificates, and pursue career and transfer pathways.

Mission: The math lab fosters a supportive and engaging learning environment where students master foundational skills in mathematics. Students attain degrees and certificates, and pursue career and transfer pathways in STEM. The Columbia College math program inspires students to become inquisitive, creative, critical thinkers, and thoughtful life-long learners.

Strategic Goals: Math lab and support course increase award completion, reduce barriers to completion, and reduce equity gaps. Applicable skills in technology (such as 3D printing) and critical thinking increase workforce readiness. Commitment to OER/ZTC reduce equity gaps, reduces barriers to completion. Developmental programs (Math Jams) help reduce barriers, reduce equity gaps. Nearly every degree or certificate includes a math class, so math department maintains instructional stability.

Math faculty (Lahna, Katryn, Melissa) are heavily involved in participatory governance for Academic and Classified Senates and curricular overhaul (Joe). Math faculty works with counselling to ensure proper placement. Math program is fully AB 705 and 1705 compliant.

Department Data Sheet

1. Review the Department Summary Data Table. What are the strengths? What are the challenges or areas of improvement? What is the impact on students? Respond to a minimum of three trends such as census enrollment, FTES/FTEF, course success rate, course retention rate, etc.

Strengths: Course Success rate (~68%) and Retention rate (~82%) are stable over time.
Challenges: Declining enrollment (high of 1700 in 16/17 to 894 in 22/23) and fill rates (high of 75% in 18/19 to 64.2% in 22/23), fewer sections offered (high of 82 in 16/17 to 37 in 21/22, with a slight uptick to 39 in 22/23). Possible impact of AB 705 and post pandemic repercussions. ASHP has still not recovered post pandemic.

2. Review the Department Student Equity – Success Rates Data Table. What are the strengths? What are the challenges or areas of improvement? What is the impact on students?

Age group 18-24 are struggling (62.9% success) and every other age group is thriving, especially the dual enrollment age students, 17 or younger, have an 80.8% success rate. Majority White (1027) have success rate of 69%, next majority Hispanic (305) have success rate of 62.3%, all other ethnicity's have counts lower than 31 and success rates widely varied between 52-92%, with success rate gap ranging between –15.9% for Hispanics and +24.7% for Asians.

Female success gap is –3.1% while Male success gap is +3.6%. Non-binary students have the lowest success rate at 46.2% and a success gap of –22.1%.

There is a need for improved support and visibility for LGBTQIA+ such as the GSA. Faculty and staff participation in training might be helpful.

3. Review the Program (Department) SLO Data Table. How does your department support ISLOs? What are the strengths and challenges? What is the impact on the college mission?

Strong (high 70's to high 80's) across all age groups, Ethnicities, Genders for Calculation, Communication and Knowledge. Critical thinking strong across all groups except for Asian and Native American ethnicities, which are also the groups that are very small samples.

Award Data Sheet

1. Review both tables on the Award Data Sheet. What are the strengths? What are the challenges or areas of improvement? What is the impact on students?

Most students taking math classes are doing so as part of another award.
Math majors over 7 year average is 5.57, with a low of 1 and high of 11.

Strengths: Math courses are involved in all or nearly all awards. Math award completions are strong as compared to other STEM awards. Math AST is awarded to more students than any other AST.

Challenges: The impact of AB705 and AB1705 is still yet to be seen, but the number of math course offerings has decreased by 4 pre-transfer level courses. We have increased the number of sections of transfer level courses as well as the addition of support courses for 4 transfer courses. Statistics being the strongest enrolled course with an 8-year average of 340 students each year.

Students may be impacted by not enrolling in the course level that they would prefer to take and therefore do not take a math course. Students enrolling in support courses do better on average than their counterparts who do not opt to enroll in support courses.

Course Data Sheet

1. Review the Course Summary Data Table for each course. What are the trends for enrollment, retention, and success rates? What are the strengths? What are the challenges or areas of improvement? What is the impact on students?

Math-2 Stats:

- Enrollment: number of sections has increased
- Retention: about 80%
- Success: about 70%
- Strengths: offering a lot of sections. Students who enroll in the optional support course do better on average than those students who do not take the optional support course.
- Challenges: with many instructors teaching the course there might be inconsistency as far as content. Online sections have higher enrollments than in-person sections but may not have as great success rates, especially in terms of student engagement and understanding. Students report that they prefer the flexibility of online classes but the support of in-person classes.
- Impact: Stats is a great general ed course that is applicable for many majors.

Math 122:

- Enrollment: post-covid enrollments are on the decline, but still enough to support multiple sections. Students are recommended to enroll in support course with same instructor as Statistics so that the course organization and timing is helpful.
- Retention: about 80%
- Success: about 70%

- Strengths: concurrent support courses have replaced the pre-requisite requirement of taking 1-3 semesters of math prior to enrolling in statistics.
- Challenges: scheduling the support courses at times that will actually be helpful for students.
- Impact: students who enroll in the optional support class have, on average, a 10% higher grade than those that don't enroll.

Math 4

- Enrollment: supports 1 section offering per year
- Retention: Declined from 90% to 88% from 2019 to present)
- Success: Fairly stable around 88%
- Strengths: This is a great class for students interested in pursuing a career in education
- Challenges: limited offerings to fall but sufficient with demand
- Impact: This class is appropriate for education and early childhood majors

Math 6

- Enrollment: Average fill rate declined 2022-23 possibly because we added more sections beginning in 21-22.
- Retention: Retention rate is stable around 85%
- Success: Success rate declined to 78% from 85% during Covid
- Strengths: Post AB-705, this is a great offering for non-STEM majors. Many students enjoy the design and layout of grading, more discussions and weekly practices and less testing.
- Challenges: Retention rate, students are learning how to attend college and are developing techniques to be successful, sometimes this happens too far after the semester has started making it difficult to receive a passing grade.
- Impact: Many students are obtaining a college transferable math class in one semester and have a better mathematical mindset.

Math 8

- Enrollment – steady at 3 sections per year, 1 per semester
- Retention – a bit lower after covid
- Success – bump up during covid, a bit lower now.
- Strengths – steady enrollment, Math Lab support has had an enormous impact on student morale. We just created Math –108- Math support for Trig and will be offering it for the first time this fall 2023.
- Challenges – AB1705 may impact enrollment/offerings
- Impact - limiting enrollment per ab1705 may impact the success rates in the Calculus sequence

Math 12

- Enrollment - steady at 10/15 students per year
- Retention – high, students taking Finite almost always stick to the end
- Success – Seems to bounce up and down? With this number of students perhaps the data is noisy?
- Strengths – One of the earliest ZTC courses at the college
- Challenges – ZTC text is getting old, Joe is rewriting it for his sabbatical for 2023/2024 year
- Impact - unknown

Math 16

- Enrollment: Slight dip in post covid era
- Retention: Dipping about 10% in post covid era
- Success: Drop from 20% from pre-covid era
- Strengths: We just created Math –116 Math support for PreCalc and will be offering it for the first time this Spring 2024.
- Challenges: Student buy-in across the board
- Impact:

Math 18A

- Enrollment: Decreasing from pre-covid
- Retention: Spike during Covid, now back to normal (80%)
- Success: Same as retention.
- Strengths: We just created Math –118A- Math support for Calc 18A and will be offering it for the first time this Fall 2023.
- Challenges: None now.
- Impact: Feeds many majors

Math 18B

- Enrollment: Steady over the years
- Retention: Maintaining around 85%
- Success: Decrease of about 15%
- Strengths: Starts to narrow down goals of students
- Challenges: None now.
- Impact: Produces highly motivated and strong math students

Math 18C

- Enrollment – steady at one section per year
- Retention – extremely high, students starting Calc 3 almost always finish it
- Success – considerably above department average, students in this course are very serious about finishing it
- Strengths – robust offering with excellent students
- Challenges – low fill rate and the number of students is often around 15.
- Impact – Most of the students in Calc 3 graduate from Columbia.

Math 26

- Enrollment – steady at around 10 - 15 students/ year
- Retention – very high, these are serious students
- Success - very high, these are serious students
- Strengths – students have reported that this course prepared them very well for transfer
- Challenges – ZTC book for Spring 24, finding tutors can be hard
- Impact – Most of the students in Linear graduate from Columbia.

Math 28

- Enrollment – steady at around 10 - 15 students/ year
- Retention – very high, these are serious students
- Success – very high, these are serious students
- Strengths – offering this course to our pre-engineering students prepares them to transfer
- Challenges - finding tutors can be hard

- Impact – Basically every student in DEs earns a degree

2. Review the Student Learning Outcomes Data Table for each course. What are the strengths and challenges? What is the impact on the college mission?

- Math –2
- Strengths: above 80% success on all 3 CSLOs (Note: there are 4 CSLOs, but only 3 are shown in the data)
 - Challenges
 - Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways
- Math 122
- Strengths: students who enroll in the optional support course do better on average than those who don't enroll.
 - Challenges: Since we cannot require students to take the support course, some students who really need the support are not enrolling.
 - Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways
- Math – 4
- Strengths: 100% success rate for SLOs of the 21 students who completed the course
 - Challenges: The last recording of SLOs since 21-22 was 16-17.
 - Impact on college mission: supporting students in foundational skills including building a growth mindset, successfully completing a college transferable math class in one semester enabling them to pursue the career and transfer pathways.
- Math – 6
- Strengths: High success rate in 19-20 and 20-21 (no data for 21-22)
 - Challenges: Only 3 years of SLO data given
 - Impact on college mission: supporting students in foundational skills including building a growth mindset, successfully completing a college transferable math class in one semester enabling them to pursue the career and transfer pathways.
- Math-8
- Strengths – improvement from 2017-18 to 2020-2021, but only those data points, limited use
 - Challenges - improvement in 20/21 may be simply a consequence of COVID grade inflation.
 - Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways
- Math 108
- Strengths: unknown, first offering in Fall 2023
 - Challenges unknown, first offering in Fall 2023

- Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways

Math –12

- Strengths – 100% success in 21/22 is probably a fluke?
- Challenges - 2 semesters of data with a total sample size of 22 students is pretty noisy.
- Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways

Math – 16

- Strengths: Increase in understanding
- Challenges: Bringing up understanding in two CSLOs
- Impact on college mission: Still putting out top math students that have Mastered Foundational Skills obtained a degree and successfully transferred.

Math 18A

- Strengths: Consistent increase in understanding across the board
- Challenges: Maintaining this prominent level
- Impact on college mission: Still putting out top math students that have Mastered Foundational Skills obtained a degree and successfully transferred.

Math 118A

- Strengths: unknown, first offering in Fall 2023
- Challenges: unknown, first offering in Fall 2023
- Impact on college mission: Increase students Mastering Foundational Skills, Attaining Degrees and Certificates, and Pursuing Career and Transfer Pathways

Math 18B

- Strengths: Consistent increase in understanding across the board
- Challenges: Keep leaning forward.
- Impact on college mission: Still putting out top math students that have Mastered Foundational Skills obtained a degree and successfully transferred.

Math 18C

- Strengths – students do well on SLOs in this course, reflecting the fact that only serious students take it
- Challenges – SLOs are not aligned with ISLOs, this is probably because of an issue importing curriculum into eLumen.
- Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways

Math 26

- Strengths – students do well on SLOs in this course, reflecting the fact that only serious students take it
- Challenges
- Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways

Math 28

- Strengths – students do well on SLOs in this course, reflecting the fact that only serious students take it

- Challenges
- Impact on college mission: supporting students in Mastering Foundational Skills, Attain Degrees and Certificates, and Pursue Career and Transfer Pathways

Curriculum Analysis

1. What courses and awards are due for 5-year review? To find this information, go to the [Curriculum Committee webpage](#) and click on the following links in the left menu bar: Course 5 Year Review Tracker link and Award 5 Year Review Tracker link.

Math AST was last reviewed in 2019 and is due for review in Fall 2024
Math 122, Math 8, Math 18C are all up for review.

Goal Setting

On the following pages, please establish goals for your department. Keep in mind the purpose of the Program Review to drive continuous improvement, as well as to help establish a need for funding or other support to achieve improved outcomes. **What sorts of things will the department be doing, or would like to be doing, to maintain, expand, or improve excellent instructional delivery?**

This template has space to establish up to three goals. If you wish to add more goals, additional forms are available in the Teams folder.

Goal 1

1. State the status of this goal (new, in-progress, or completed):

In - progress

2. State this goal in one or two sentences?

Make all math courses ZTC (A/B/C)

3. What is a short name for this goal?

ZTC - Math

4. In what ways will achieving the goal support the college's mission and/or core values?

Reducing student textbook cost clearly helps our students. Access to courses to provide Transformational learning.
We equally value an environment of academic success and wellness for all of our students through effectively integrated support services.

5. List the college-wide strategic goals that will be addressed by this goal (include all that apply and remove any that do not apply).

- Increase award completion
- Reduce barriers to completion
- Reduce equity gaps

6. What steps are you going to take to achieve this goal?

Convert all courses to ZTC.

7. How are you going to measure completion of this goal?

See if all courses are ZTC

8. If this goal was completed or is in progress, please provide an update and summarize efforts.

Math 26 is the last course to convert. It's going to be converted for Spring 24.

9. Briefly describe or list the types of resources (staffing, equipment, technology, facilities, etc.) that are needed to support and achieve this goal. Then enter all resource requests through the Resource Allocation Requests link below.

More copies of the class sets of books to make Calculus ZTC might be needed. If an open source book for math 26 can't be found, a class set may need to be purchased.

Resource Allocation Requests

- Enter requests in the Program Review Resource Allocations Request Form (Secured – YCCD Login Required) located on the [Program Review webpage](#) under the Resource Allocation Requests heading.

Goal 2

1. State the status of this goal (new, in-progress, or completed):

In progress (We offered one community workshop to K-12 educators in November 2022 but we would like to continue this)

2. State this goal in one or two sentences?

To continue offering Mathematical Mindset Workshops to K12 educators to build community and collaboration in math education throughout the county.

3. What is a short name for this goal?

Community Outreach Workshops

4. In what ways will achieving the goal support the college's mission and/or core values?

Impact on college mission: By connecting with local K12 educators, we are bridging the gap and supporting students before they get to college. If we all work together to foster growth mathematical mindsets in our students, we will have more successful outcomes for all students.

5. List the college-wide strategic goals that will be addressed by this goal (include all that apply and remove any that do not apply).

- Increase award completion
- Reduce barriers to completion
- Reduce equity gaps
- Increase transfer readiness
- Increase workforce readiness
- Maintain institutional stability

6. What steps are you going to take to achieve this goal?

Continue to collaborate with Tuolumne County Schools STEM coordinator to plan annual workshops and establish an email list of local math teachers interested in participating (We have already started this).

7. How are you going to measure completion of this goal?

By attendance and demand for future workshops

8. If this goal was completed or is in progress, please provide an update and summarize efforts.

On Saturday, Nov. 5th 2022 Katryn Weston and Melissa Anisko hosted a Mathematical Mindsets workshop in the Sequoia Math Lab as a partnership with Tuolumne County Schools and Calaveras County Office of Ed. There were 15 participants that were K-12 educators. We enjoyed a day of programming and activities focused around creating positive and enriching math experiences for students. The event received positive feedback from participants including comments about:
-enjoying getting to be on the college campus and learn more about our program

-appreciating the time to collaborate and discuss pedagogy with other area math instructors
-liked the welcoming and comfortable environment
-appreciating the good food
Participants also expressed a want for the following:
-wanting to explore more mathematical growth mindset activities
-more content/discussion for higher grade levels
-training in data science

9. Briefly describe or list the types of resources (staffing, equipment, technology, facilities, etc.) that are needed to support and achieve this goal. Then enter all resource requests through the Resource Allocation Requests link below.

Since this event was co-hosted by a faculty member and the instructional support specialist, we needed approval for the extra work time for the ISS and flex credit for the faculty. We would like to have assurance that in the future we can continue to waive facilities fees for the use of the building on the weekend to host educators from around the area. We were able to host the event with instructional supplies we had on hand but may need more for future events. The biggest expense (but most appreciated) was having lunch catered for all the participants. For the previous event we were able to partner with the offices of education for each county and they paid for participants and that cost covered the catering.

Resource Allocation Requests

- Enter requests in the Program Review Resource Allocations Request Form (Secured – YCCD Login Required) located on the [Program Review webpage](#) under the Resource Allocation Requests heading.

Goal 3

1. State the status of this goal (new, in-progress, or completed):

In progress

2. State this goal in one or two sentences?

Continue offering Math Jams

3. What is a short name for this goal?

Math Jams

4. In what ways will achieving the goal support the college's mission and/or core values?

5. List the college-wide strategic goals that will be addressed by this goal (include all that apply and remove any that do not apply).

- Increase award completion
- Reduce barriers to completion
- Reduce equity gaps
- Increase transfer readiness

6. What steps are you going to take to achieve this goal?

We are working with student services to integrate Math Jams into WOW as part of their Week 0 events. Everyone has been supportive of this move and WOW is committed to keeping Math Jams as a part of regular programming. The planning for Math Jams the week before Fall 2023 semester starts is already underway.

7. How are you going to measure completion of this goal?

We will measure the success of this event by looking at how many students participate. Of the students that participate we can look at their success and retention rates as well as award completion. Math Jams has also evolved out of a need for more support because of AB 705 which aims to help students complete their math sequence in their first year of enrollment, we can look at the students who participated in Math Jams to see if they are meeting that goal.

8. If this goal was completed or is in progress, please provide an update and summarize efforts.

We have offered Math Jams programming for one full academic year. The Fall 2022 Math Jams went well with a group of 49 students that participated. Overall, we had positive feedback and were able to make note of changes we wanted to implement for future events. We ran another version of Math Jams in the Spring that was not as successful due to lack of participation. We will continue working to find the format for this spring event that works to best support students.

9. Briefly describe or list the types of resources (staffing, equipment, technology, facilities, etc.) that are needed to support and achieve this goal. Then enter all resource requests through the Resource Allocation

Requests link below.

This event has been facilitated and hosted by the instructional support person for math who, depending on the schedule of events, may need to be approved to work extra hours during the event time. Math faculty who are interested may participate as well, if they could get approved to use this as a flex activity. We use the classrooms in the Sequoia building, including the projectors for the event so we need to be able to reserve those spaces, most likely this would be Sequoia 109 and 120 (Math Lab). There may be a need for some support from facilities to help rearrange tables and chairs in these spaces for the event. With the foundation support for this event, we were able to provide some take-home supplies to students who participated as well as make available snacks and water, funding to continue these would be fantastic. We also used some funds for misc. teaching supplies such as poster paper and markers for activities among other things. Last year we paired this event with Jumpstart and provided breakfast and lunch for all participants. This year we are again doing this partnership and the students will be provided with lunch as part of the day's programming.

Resource Allocation Requests

- Enter requests in the Program Review Resource Allocations Request Form (Secured – YCCD Login Required) located on the [Program Review webpage](#) under the Resource Allocation Requests heading.

Submit

- When you have completed all areas of the Program Review as outlined above, notify your dean by typing the @ symbol and your dean's name in the box below (e.g. @Sean Osborn, @Steve Amador, etc.).

@Sean Osborn

@Jeri Pourchot

Dean's Review and Feedback

Deans: Please review the form above and place any thoughts or feedback that you have in the space below. Feedback from AAC, counseling, industry, etc. can be included. When completed, please put the @ symbol and the faculty member name(s) at the end so that they will get notified when your review is completed.

The math department has been working to grow enrollments through outreach. They have also been working on student retention and success. Both of these have shown success. The goal of increasing ZTC options ofr math is a very good idea. This not only helps with the financial burden associated with high textbook costs, but does so through an equity minded lense. Many socioeconomically disadvantaged students do not take courses where the textbook cost is too high, or they struggle with finding material to review because they are unable to purchase the books.