

Mathematics Department

AUP for Academic Year 2021-2022

October 2020

Describe Department/Unit

Connection to College Mission

The Mathematics Department at Cerro Coso Community College plays an important role in preparing students to achieve their educational goals. The department currently offers math courses from one level below transfer to transfer level as well as an online math degree. Beginning in the fall of 2019, the department implemented a plan to accelerate students through the math sequence by placing all entering math students into either a transfer-level College Algebra (with concurrent support) or for non-STEM majors, a Beginning Probability and Statistics course with a lab to provide Algebra remediation. The department's curriculum supports the mathematical needs of other disciplines and programs. The department's courses help students develop logical reasoning and problem solving skills which form a foundation for their careers and future study. The Mathematics Department at Cerro Coso Community College offers classes which support the requirement for the AA and AS degrees, vocational/technical programs, and transfer to the university. We have entered into agreements and developed equivalencies with the California State Universities (CSU) and University of California (UC) systems. When our students transfer to the CSU or UC system, credits they earn in the mathematics department are transferable. This is also an indication that these transfer students from Cerro Coso Community College will be successful in completing higher degrees. Over the past year, the department has also worked on aligning the courses in the math degree with C-ID descriptors to increase the options students have in transferring to other colleges. The Mathematics Department offers math courses at the Indian Wells Valley (IWV), Eastern Sierra College Center (ESCC), and South Kern (SK) campuses as well as online. Our math courses are also offered at the Cal City and Tehachapi Correctional facilities. Cerro Coso's math curriculum is also offered as dual enrollment courses at Tehachapi, Cal City and Boron High Schools. Currently, the department has six full-time faculty and several adjunct faculty to provide mathematics instruction to students in our broad geographic range.

Report on Improvements Made and Gaps Identified in the Prior Year

Student Equity: Actions Taken

Over the past year, the Math Department has continued to implement the strategies of AB-705. All sections of MATH C121 now are taught with a lab portion of the class where students can refresh their basic math and Algebra skills needed to be successful in the class. Over the past summer, one math faculty and the math chair began working collaboratively to create a College Algebra course that will provide another transfer-level math option other than Statistics for non-STEM students.

The department had previously identified a success gap among lower-income students. In order to provide equal access to lower income students, several math instructors continue to use OER's (open-ended resources) to teach their classes over the past year. In some cases when the OER's have been lacking in content, some math instructors have taken it upon themselves to bring in other supplemental materials, in some cases at their own expense, in order to maintain the quality of their courses.

In order to provide academic support for all students, the department continues to maintain a math lab with math instructors who are available to tutor students on a drop-in basis. The department continues to adopt a best practice of greater transparency as a means to close achievement gaps in math classes. Over the past year, math instructors continue to implement best practices in all sections as a means to provide direction for students. Some of the practices include maintaining a Canvas course shell for on ground classes, clearly stating classroom expectations of both the instructor and student throughout the semester, and keeping students updated with frequent feedback on their grades and performance. Other instructors have made online classes more accessible to students by embedding Publisher's websites directly into the Canvas shell. This allows for more immediate feedback to students.

Student Equity: Gaps to be Addressed

Ethnicity: African American

Gap Identified:

Success rate was 32.0% which is 25.7 percentage points below the overall math success rate.

Socioeconomic Status: Economically Disadvantaged

Gap Identified:

Success rate was 51.0% which is 6.7 percentage points below the overall math success rate.

Gender: Female

Gap Identified:

Success rate was 51.9% which is 5.8 percentage points below the overall math success rate.

Disability Status: DSPS

Gap Identified:

Success rate was 45.0% which is 12.7 percentage points below the overall math success rate.

Outcomes Assessment: Actions Taken

Actions taken in the prior academic year

A change made was a reduction in the number of SLOs in MATH C130 and MATH C141 during the spring semester when these two courses were brought through CIC for a mandatory revision to the CORs. It is envisioned that more SLO targets will be met in these two courses if students are able to focus more in-depth on fewer SLOs that are broader in scope.

Assessments completed in the prior academic year

MATH C121

MATH C141

Outcomes Assessment: Gaps to be Addressed

Probability and Statistics MATH C121

Type:

SLO

Target Missed/Gap Detected:

SLO 1 Apply appropriate inferential analyses to real situations in order to draw conclusions about a population or several populations. **70% / - 4%**

SLO 3 Construct and interpret hypothesis tests and confidence intervals. 70% / -9.4%

Type of Gap:

Need to alter/refine instructional techniques. Student unpreparedness in soft skills (time mgmt, notetaking, etc.).

Analysis and Plan for Improvement:

Spend more time on hypothesis tests, confidence intervals and interpretation of test results.

Anticipated Semester for Implementing Planned Improvements:

Spring 2021

Anticipated Semester of Next Assessment:

FALL 2020 or Spring 2021

MATH C141

Type:

SLO

Target Missed/Gap Detected:

SLO 3 Recognize the equations of lines, conics, and rational functions; describe their graphs and use their properties. 70% / -4.8%

SLO 6 Use arithmetic and geometric sequences in applications. 70% / -9.4%

SLO 8 Find limit values through exploratory numerical methods and through application of basic algebraic principles. 70% / -20%

Type of Gap:

Impact of course delivery mode. Other (explain in Analysis).

Analysis and Plan for Improvement:

Currently all three of these topics are rushed through due to time constraints. Simply spending more time on them with quizzes to ensure understanding should improve scores.

Anticipated Semester for Implementing Planned Improvements:

Spring 2021

Anticipated Semester of Next Assessment:

Spring 2021

Program Review: Actions Taken

Mathematics AST

Year of Last Program Review:

2016

Actions Taken in the Prior Year to Address Strategies:

3 year goals

Goal 1. Define an improved SLO assessment process. The department has fully implemented using eLumen for the assessment of the SLOs. Both full-time and adjunct faculty are now scheduling assessments in eLumen and entering results for each student in eLumen. In several math courses the number of SLOs was decreased to facilitate the assessment process.

Goal 4. Investigate OER materials for the Math Program. In the past year two full-time math instructors reviewed the Lumen website as a means to reduce the cost of an access code. Three other full-time instructors regularly use OERs or their own materials to teach their courses.

6 year goals

Goal 2. Offer Differential Equations in an online modality. This has been accomplished.

Goal 3. Full-time math faculty teach the majority of the on ground Calculus courses. This has been accomplished in the past year and currently all Calculus courses are being taught by full-time faculty.

Strategies Still to be Addressed:

3 year goals

Goal 2. Collect course progress data specific to students in the Math Program. Although this should now be available in Tableau, the department still needs to have conversations about success rates in some of its courses.

Goal 3. Improve PLO assessment data specific to math majors.

6 year goal

Goal 1. Increase the number of students that complete the Math Program This goal may be out of the control of the department as college enrollments diminish state-wide.

Annual Planning: Actions Taken

Increase the number of students completing transfer-level math in one year.

All MATH C121 courses now run with a math lab to assist students who may be lacking the prerequisite math and Algebra skills to be successful in this introductory Probability and Statistics course. More sections of MATH C121 are now being offered than in prior years. Several Statistics instructors have developed and shared remedial activities for the math labs.

For MATH C141 instructors attempted to use embedded tutors but it did not work out well. Over the past year the department has chosen to create a non-STEM transfer-level College Algebra course in lieu of embedded tutoring

Sustain and increase the number of math courses offered in the Tehachapi area.

The site director for the Tehachapi area has collaborated with the math chair on scheduling and a somewhat consistent schedule has been put in place. There has also been collaboration between administrators, faculty, and the chair on textbooks, copies, and

calculators. Two class sets of TI 84 calculators were obtained for use in the Tehachapi area. A full-time math faculty continues to provide tutoring for students in the Tehachapi area.

Offer College Algebra and Trigonometry at sites.

Over the past year, College Algebra MATH C141 was offered at the Mammoth and Bishop campuses with robust enrollments.

Review of Current Year Initiatives

Reminder of Initiatives for the Current Year

Increase the number of students completing transfer-level math in one year.

None needed.

Offer College Algebra and Trigonometry at sites.

None needed.

Receive approval of a transfer-level course in the OEI Exchange

None needed.

Plan Initiatives for Next Year

Initiatives for Next Academic Year

Create a Transfer-Level College Algebra for Non-Stem Majors

Is this part of a multiyear initiative?

Yes

Specific Action Steps to be Taken:

- a) Write MATH C110 COR
- b) Take the COR through the CIC Committee
- c) Obtain State Approval

Lead Measure of Success:

- a) Increasing enrollments in MATH C110
- b) Retention and success numbers go up

Are any of the lead measures identified above lacking assessment instruments?

No

Does the department request help to develop these instruments?

No

Lag Measure of Success:

Students enroll in another math class after taking MATH C110.

Person Responsible:

Math Chair and math faculty

It addresses a gap in outcomes assessment

Which strategic goal does this initiative address?

Goal 1: Maximize Student Success

Coordinate the MATH C121 Lab Among Instructors

Is this part of a multiyear initiative?

Yes

Specific Action Steps to be Taken:

Instructors meet and discuss best practices.

Instructors observe each other's classes.

Attend conferences.

Lead Measure of Success:

COR revision

Better success and retention numbers

Are any of the lead measures identified above lacking assessment instruments?

No

Does the department request help to develop these instruments?

No

Lag Measure of Success:

A comprehensive list of lab activities and topics posted on the department Canvas shell for all math faculty to refer to.

Person Responsible:

Math Chair

It addresses a program review strategy

Which strategic goal does this initiative address?

Goal 1: Maximize Student Success, Goal 2: Advance Student Equity Measures

Evaluate Resource Needs

Facilities

No extra facilities needed at this time.

Information Technology

No new information technology needed at this time.

Marketing

No new marketing needs are foreseen at this time.

Professional Development

Math Faculty need to attend conferences on just in time remediation for Transfer-level Statistic courses as well as training on best practices for remedial math labs.

Research and Data

None needed at this time.

Staffing Requests

1000 Category - Certificated Positions

MATH

Location:

Justification:

No additional certificated positions are needed in the Math Department at this time.

2000 Category - Classified Staff

MATH

Location:

Salary Grade:

Number of Months:

Number of Hours per Week:

Salary Amount:

Justification:

No additional classified staff are needed at this time.