

Mathematics Department

Annual Unit Plan for Academic Year 2017-2018

October 2016

Describe Department/Unit

Mission/Connection to College Mission

The Mathematics Department at Cerro Coso Community College plays an important role in preparing students to achieve their educational goals. We offer math courses from the remedial level to transfer level as well as an online math degree. Our curriculum supports the mathematical needs of other disciplines and programs. We help our 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 improve basic skills and 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. The Mathematics Department offers courses at the Indian Wells Valley (IWV), Kern River Valley (KRV), Eastern Sierra College Center (ESCC), South Kern (SK), and Tehachapi sites as well as online . Currently, three full-time faculty serve the IWV campus. One full-time faculty serves the KRV campus , and one full-time faculty serves the ESCC campuses. Courses offered at SK and Tehachapi campuses are taught by adjunct faculty. A full-time High School Math Faculty also teaches dual enrollment math courses at Tehachapi High School.

Report on Improvements Made and Gaps Identified in the Prior Year

Student Equity

Retention -5% Success -14%

Population:

Ethnicity: African American

Analysis and Plan:

African Americans had a Mathematics retention rate that was 5% than the overall groups combined. Success rates in math courses for African Americans was 47%, which was 14% lower than the success rate in math for all groups combined.

The department will focus on the following strategies to improve.

For retention, the faculty will work under the guidance of the SSSP committee to implement strategies to better engage this population.

To improve success rates, the department will continue implementing teaching practices which strongly encourage students to attend the Math Lab. These practices include but are not limited to

a) allowing students to redo problems on some in-class assignments where problems were done incorrectly. Students can receive partial credit back for the missed problems provided the corrections are done in the Math Lab.

b) giving students two or more quizzes in each class and requiring at least a 90 % score on them. Students that are unable to obtain the 90% score for the quizzes in class come to the Math Lab to receive help one on one to achieve the required scores.

Instructors also encourage students to form study groups, obtain a tutor, and inform them as to the amount of time they should be studying outside of class. Other instructors try to frequently give study tips or point out how to best learn from the book.

Retention - 7% Success -3%

Population:

Age: 40 or older

Analysis and Plan:

For this demographic group, the department feels as a whole that better course placement would help with both retention and success. Older students sometimes have been away from math for some time and are often missing some important math skills required for success.

A pretest would help identify math skill weaknesses.

The department will design supplemental assignments for students to complete in the MathLab which will target specific math skill deficiencies.

Outcomes Assessment: Overall Report

In previous year's assessments achievement gaps were identified in two-dimensional graphing skills in three Algebra courses. They were as follows:

Math C050 Elementary Algebra SLO Graphing Linear Equations and Inequalities Gap of 9.8%

Math C055 Intermediate Algebra SLO Graph and Write the Equation of a Line Gap of 6.6%

Math C141 College Algebra SLO Recognize the Equations of Exponential Functions and Logarithmic Functions Gap of 12.2%

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There were achievement gaps in other skills but the department chose to focus on graphing skills due to the fact that deficiencies in these skills seemed to be the most prevalent and reoccurring across the sequence of math courses. Although each instructor tends to employ their own techniques to improve graphing skills most instructors emphasized more repetition and time spent with graphing. In any case any teaching strategies to improve graphing skills were not scaled out across all sections. To move forward, on ground Math C050 classes at the IWV campus will assign an outside of class graphing assignment to be completed in the Math Lab beginning in fall semester of 2016. Depending on the outcome, the department would then try to scale an extra graphing assignment to include Math C055 and Math C141 classes as well.

There were also substantial achievement gaps in Probability and Statistics Math C121 courses. The department has added an alternative prerequisite course to Math C121 which is a Pre-Statistics course over the last year. This hopefully will be better prepare student for Math C121. Finally, the number of SLOs will be reduced from 16 down to just 4 more encompassing SLOs. The rewriting of the CORs to include the reduction in SLOs did not happen over the summer and but will be done over winter of 2016 to be submitted for CIC approval in spring of 2017.

Outcomes Assessment: Gaps Identified in Prior Year's Assessments

No Formal SLO Assessments were Documented For Academic Year 2015 - 2016

Type:

SLO

Target Missed/Gap Detected:

Type of Gap:

Analysis and Plan:

Progress Made on Program Review

AS- T In Mathematics

Year of Last Program Review:

First Program Review

Progress in the last year on two-year strategies:

The following two-year goals were identified over the last year and presented at Academic Senate and to College Council.

1. Establish a streamlined SLO assessment process with standardized testing that is carried out across all sections of courses.
2. Implement a system where students in the program are identified and their progress tracked.
3. Improve the PLO assessment data specific to math majors either through an exam that directly addresses the PLOs or by obtaining data supplied by an institutional researcher.

Progress in the last year on five-year strategies:

The following five-year goals were identified over the last year and presented at Academic Senate and to College Council.

1. Increase the number of students that complete the Math program.
2. Offer Differential Equations online.
3. A full-time math faculty teaches the majority of the on ground Calculus courses. This will be accomplished either by hiring a full-time Calculus specialist or by one of the current full-time faculty at the IWV campus working their way up through teaching the Calculus series.

Progress Made on Prior Year Initiatives

Objective 1.1: Increase the percentage of students who successfully complete 12 units within one year using 2011-12 as the baseline year.

At all sites, over the past year, Math C020 (Basic Arithmetic) has been moved to Adult Education so now all remedial math students begin at Math C040 (Pre-Algebra) or higher.

Over the last year, there were no students ready to take a Math C040/ C050 combination class or Math C050/C055 combination class.

All Full-Time Instructors Provide 3 Hours Per Week of One-to-One or Small Group Math Tutoring in the LAC

The Math Lab at all sites continues to be implemented and the number of student visits is increasing. Although the number of visits from Math Basic Skills students has been waning at the IWV campus over the last year, the number of visits from Math Basic Skills students at the KRV campus have been very high due to some teaching strategies being implemented by an instructor there.

In addition to just the full-time faculty providing walk-in tutoring in the Math Labs, it should be noted that all of the adjunct Math faculty are also providing at least two hours per week of service in the Math Labs as well.

Plan Initiatives for Next Year

Initiatives for Next Academic Year

Implement a Comprehensive SLO Assessment Process

Action Plan:

Create a Math Department Canvas website which will store standardized assessments for all math courses. All Math Faculty have access to the website. Information about assessment dates, assessment procedures and data reporting are supplied on the site. All math faculty are informed by the site and have the opportunity to contribute as well.

Measure of Success:

Evidence that the Math Department website is being used for assessment can be provided by way of a discussion board as well as assessment results being uploaded onto the site.

Person Responsible:

Steve Rogers

It addresses a program review strategy

Two-year goal of "Define an improved assessment process."

Expand Online Tutoring

Action Plan:

The Math Department will assist the Basic Skills Department to expand tutoring into the online courses by doing the following:

1. Math faculty will consistently recommend qualified math tutors.
2. Routinely encourage online students to use online tutoring services.

Measure of Success:

Students are using the online tutoring services provided in online Math courses.

Person Responsible:

Online Math Faculty, Tyson Huffman, Steve Rogers

Other

It directly addresses the issue of lower success rates in online courses.

Reduce textbook costs

Action Plan:

Experiment with OER's (Open Educational Resources).

Look for textbooks that will overlap multiple courses in a sequence.

Measure of Success:

1. Open Educational Resources being used for either Math C040 (Pre-Algebra) or for Math C053 (Pre-Statistics) or both.
2. In spring of 2017 begin using the same textbook for both Math C050 (Beginning Algebra) and Math C055 (Intermediate Algebra) at all sites and in online sections.

Person Responsible:

Steve Rogers, Dean Bernstein

It addresses a gap in student equity

Low income students

Increase the Scorecard in Basic Skills Courses**Action Plan:**

Scale out the strategies used at KRV to get Basic Skills students to consistently attend the Math Labs at all sites. Specifically target retaining "at risk students" in Math C040 sections.

Measure of Success:

The measure of success should be twofold. First there should be an increase in Math C040, C050 and C055 students signing into the math lab. To follow, there should be a closing of equity gaps in retention for the remedial math sequence as at risk students are more engaged through supplemental tutoring from instructors.

Person Responsible:

Steve Rogers, Basic Skills Math Instructors

It addresses a gap in student equity

African American, American Indian, Over 40 age group

Evaluate Resource Needs

Facilities

Whiteboards that wrap the Math Lecture Room at KRV would be helpful. When students go to the board to work problems, the current limit is only 7 students at a time. In the math tutor room it would be helpful to have a full size whiteboard. Currently there is one very small rolling board. Either a full size one on the wall, or a full size rolling board would be very useful.

Information Technology

It would be very useful to have the math classroom at KRV outfitted with Smartroom technology.

Marketing

With the growing number of Cerro Coso College Credit Math Courses being offered at local high schools, there is a need for the department to market its AS-T Math Degree Program to some of these students who may not be aware of it.

Professional Development

The department would like to see more professional development opportunities explaining availability and the use of open-ended resources. While some of the math faculty have become excited about implementing OER's from previous presentations, most of the math faculty still feel somewhat unsure of how to actually use them in their classes.

Staffing Requests

1000 Category - Certificated Positions

Mathematics

Location:

EKC Tehachapi

Justification:

1. Although there is a decrease overall in the number of students on first day waitlists in math courses than the previous years, there still are first day waitlists for both on ground and online math courses
2. Enrollments for Calculus I and Calculus II courses remain robust. Although higher level courses such as Differential Equations and Calculus III have enrollments that are under enrolled, they continue to run every year to support Math and Science majors. The number of students declaring their major as math has almost quadrupled since fall of 2010.
3. Many of the courses in the math department are core mission in that they support pathways for other programs. There are at least 11 programs that depend on the math department to prepare students for core classes.
4. Courses are not over scheduled. The math department routinely starts with a minimum number of sections and only adds additional sections as enrollments require.
5. The department currently is very fortunate to have some highly qualified and dedicated adjunct instructors. Thus the department has the capacity to schedule math courses in all of the time blocks except at the Tehachapi Center. There, we can only offer the math courses in the evening due to the fact that both of the adjunct instructors have full-time careers during the day.
6. There is a demand for engineers in the local Ridgecrest area.
7. It is currently unknown what the costs and/or lost revenue from gaps between student demand and course or program capacity are.

The Following Data Are for the 2015 – 16 Academic Year.

- a. Overall Waitlist Size - 33
- b. Department Productivity (FTES) - 321.9
- c. Full-time faculty 5
- d. Number of Adjunct Faculty - 8
- e. Number of Certificates Awarded - NA
- f. Number of Degrees Awarded - 6 AS-T
- g. Core Curriculum Classes/ Programs - 5
- h. CTE Classes - NA
- i. number of students at first day/ census -

2,846 / 2,377

2000 Category - Classified Staff

Not Applicable

Location:

Salary Grade:

Number of Months:

Number of Hours per Week:

Salary Amount:

Justification: