

ANNUAL PROGRAM REPORT

College	Science
Department	Mathematics
Program	BS and MS
Reporting for Academic Year	2019-20
Last 5-Year Review	2017-18
Next 5-Year Review	2022-23
Department Chair	Julie Glass
Author of Review	Julie Glass and Kathy Hann
Date Submitted	October 1st, 2020

I. SELF-STUDY

A. Five-Year Review Planning Goals

B. Progress Toward Five-Year Review Planning Goals

C. Program Changes and Needs

II. SUMMARY OF ASSESS -

Appendix B - Faculty work in support of Department Goals

I. SELF-STUDY

A. Five-Year Review Planning Goals

Improve, enhance and modernize the curriculum in support of student success

Support faculty professional work in alignment with department priorities, goals and student engagement

Work collaboratively across the university and within the College of Science in support of student success

B. Progress Toward Five-Year Review Planning Goals

Because of the extraordinary circumstances of the past year, in this report the Department of Mathematics will highlight its work supporting students through the pandemic, move to remote instruction, civil unrest, and the fight for justice in our nation.

As was stated in our message to faculty and students at the start of the fall term, before anything else, we must acknowledge how difficult the past months have been for us, our families, our students, our community, our nation, and the world. The COVID-19 pandemic is creating havoc and uncertainty while at the same time, the powerful Black Lives Matter movement is inspiring and challenging us to rethink and re-evaluate the way we approach our obligations and opportunities as educators.

In this report, we take the opportunity to share with you some concrete actions we in the

better communicate options to students, and, in better times, providing the Math

Staff: Our staffing will decrease in Fall, 2020, with the departure of our shared ASA II. We have a full time ASC II position serving as Office Manager for Mathematics. With budget cuts, we have not been able to sustain our student support for staff. This, alongside the loss of our ASA position, puts considerable strain on our ASC II. Finally, we have a full time Director for our Math Lab who is an SSP II. The department is complex in its service and major components and is in need of additional staff support to meet the needs of our students.

Resources: The current location and size of the Math Lab is sufficient to support students in Math 115, Math 15, Math 118, Math 18, Stat 100, Stat 100A, Stat 101, and Stat 101A. The LA program recently expanded to include Math 110/10, Math 120, Math 125, and also the new courses served by the STEM Lab. Due to this expansion, when we return to in-person services, the current Math Lab physical location will no longer suffice.

Assessment: We plan on continuing to use our current process of re-examining appropriate final exam problems using an RVF rubric. We have reduced the number of courses we assess per year with a focus on mastery in all areas.

Other: We are working towards further improving our implementation of active learning across the curriculum. We have a grant (SEMINAL) that has supported a robust implementation in Math 120, Math 130 and Math 131 and are looking forward to expanding this effort to Math 115. We recently received funding from the California Learning Lab which will help us implement more active learning and new “big ideas” approach in precalculus. This new project includes San Francisco State, Merit College, Berkeley City College, the College of Alameda, We are part of a proposal to NSF proposal that will advocate for Achieving Critical Transformations in Undergraduate Programs in Math (ACT UP Math) centered around issues of diversity, equity and inclusion.

II. SUMMARY OF ASSESSMENT

A. BS Program Learning Outcomes (PLO)

Students graduating with a BS degree in Mathematics will be able to:	
<i>PLO 1</i>	Apply the definitions, techniques and theorems of mathematics. (ILO Thinking and Reasoning: Quantitative Reasoning.)
<i>PLO 2</i>	Use mathematics to understand, explain and/or solve problems beyond a particular course.
<i>PLO 3</i>	Creatively conjecture and rigorously write, analyze and critique prom-ctf

B. Summary of BS Assessment Process

Instrument(s): The department used a final exam question and a rubric. The rubric was used to score the exam question in the areas of readability, validity and fluency.

Sampling Procedure: The course for this year's assessment was chosen by the department when we created our five-year assessment plan but was changed due to artifact availability because of the COVID 19 pandemic. A final exam question was identified as a typical problem for the course that demonstrates the PLO to be assessed.

Sample Characteristics: The course selected is a course required for all majors. The exam question was selected carefully to ensure it included essential course content.

Data Collection: Final exams were accessed via blackboard by the department assessment coordinator. The problem was scored by the assessment coordinator for readability, validity and fluency using the rubric found in Appendix A.

Data Analysis: Course Assessed: MATH 330 Analysis I

Math 330, PLO 2: Use mathematics to understand, explain and/or solve problems beyond a particular course.

Problem: Prove if $\{a_n\}$ converges to a then $\{ca_n\}$ converges to ca

	Missing	Emerging	Developing	Mastering
Readability	0%	0%	30%	

These scores indicate that 50% of the students have mastered the ability to write a valid solution,

important goal for the department that will also impact our undergraduate enrollment.

Our graduate enrollment has been in decline (45 in 2015-16 to 28 in 2020-2021). We continue to stress teaching opportunities for our graduate students, many of whom land coveted tenure track positions at local community colleges based, in part, on the opportunities we provide. With the elimination of developmental math, our students now start by teaching “co-requisite” workshop courses and those who demonstrate strong skills in the classroom are able to move up to teaching “parent” courses within a year. They must also all take Math 605: Teaching Math and the University Level. While continuing to support our future community college MS

Reflections on Trends and Program Statistics

It is of note that for a service department such as Mathematics, data about majors simply does not tell the full story. A large percentage of FTEs are in our service courses. As the university continues to strengthen its reputation in STEM and Business, we expect this responsibility to increase and enrollment to continue to grow. Also with the Graduation Initiative in place and the bottleneck/gateway positioning of many of our courses, we are making significant changes and improvements in the instructional practices in our service courses. All such moves require permanent faculty leadership, a role that is most naturally played by our tenure/tenure track faculty. At this time we have only a few tenure/tenure track faculty teaching classes below the

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