Academic Program Assessment Report for AY 2022-2023 **Program** **Mathematics**

(Due: June 1, 2023) **Date report completed:** 16 May 2023

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Brief statement of Program mission and goals: Program Overview: The Mathematics BA/BS program is designed to prepare students to use quantitative and analytical methods and powerful mathematical problem-solving strategies necessary for lifelong independent learning.

Students will learn to formulate and solve problems using mathematical tools while working alone or in groups on routine problems, non-routine, and open-ended problems, problems involving applications to other fields, problems involving real-world data, and abstract problems within mathematics.

Students in the Mathematics program can specialize in their field of interest or choose a concentration in Secondary Certification.

The Mathematics program prepares students for professional careers and graduate studies in actuarial science, computer science, engineering, operations research, biomathematics, cryptography, finance, pure and applied mathematics, and teaching.

Student Learning Outcomes

At the conclusion of the mathematics programs:

1. Students will have facility in the core mathematical content areas: calculus, algebra, and other additional topics.
2. Students will formulate and solve problems using mathematics, working alone or with others at the three cognitive levels: routine problems, non-routine problems and applied problems. They will also be able to formulate and solve applied problems involving applications to other fields and problems involving real-world data.
3. Students will create, analyze and use mathematical abstraction. They will understand and write formal mathematical arguments. They will appreciate the standards for mathematical rigor, elegance and beauty.
4. Students will produce and deliver effective written presentations of mathematical material and ideas.
5. Students will find and select appropriate written sources of mathematics and learn independently from these sources.

I. Assessment of Student Learning Outcomes (SLOs) in this cycle. Including processes, results, and recommendations for improved student learning. Use Column H to describe improvements planned for 2023-2024 based on the assessment process.

A. Which of the program SLOs were assessed during this cycle? **Please include the outcome(s) verbatim from the assessment plan.**	B. When was this SLO last reported on prior to this cycle? (semester and year)	C. What method was used for assessing the SLO? **Please include a copy of any rubrics used in the assessment process.**	D. Who was assessed? Please fully describe the student group(s) and the number of students or artifacts involved (N).	E. What is the expected proficiency level and how many or what proportion of students should be at that level?	F. What were the results of the assessment? (Include the proportion of students meeting proficiency.)	G. What were the department's conclusions about student performance?	H. What changes/improvements to the program are planned based on this assessment?
1. Students will have facility in the core mathematical content areas: calculus, algebra, and other additional topics.	AY 17-18 is the latest to be found in the I Drive	The Mathematics Major Field Achievement Test, given to each student at the end of their second capstone course (Math 421 and Math 427).	Students in either Math 421 Fall 17 or Math 427 Spring 18 who were completing the second of these two capstone courses. These are generally students who will graduate in this or the subsequent term. (N=4)	90% of students above the 50th percentile in the national rankings.	Half of the students (2 out of 4) met the benchmark. One student was close (46^{th} percentile)	The student with the lowest score (not even close to benchmark) only took classes at CSUP for two semesters. In a way, this datum should not be counted in the sample. Conclusions: 1. We need to reevaluate the benchmark (90% above 50^{th} percentile is too high) 2. We need to collect several years of data and meet to discuss the statistics from these data	No changes agreed upon. Department Chair will initiate strategic planning fall 2023 to build a more robust assessment plan for the program.

Comments on part I: No assessment report was turned in by the mathematics department chair for AY 2021-2022.

II. Closing the Loop. Describe at least one data-informed change to your curriculum during the 2022-2023 cycle. These are those that were based on, or implemented to address, the results of assessment from previous cycles.

A. What SLO(s) or other issues did you address in this cycle? **Please include the outcome(s) verbatim from the assessment plan.**	B. When was this SLO last assessed to generate the data which informed the change? Please indicate the semester and year.	C. What were the recommendations for change from the previous assessment column H and/or feedback?	D. How were the recommendations for change acted upon?	E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations?
Our bachelor's degree plans looked like a plate of spaghetti. We had sequences six or seven semesters long in which students were enrolled in required courses that they could not fail.	In the fall semester of 2022, the mathematics faculty members met to discuss the plan. We displayed the current degree plan as a map and identified potential places of improvement/ change.	As mentioned above, there is no previous column H. "Feedback" was from the department chair to the faculty members.	Recommendations for change were discussed at program meetings using Robert's Rules of Order. While there was some apparent division in the disucssions, when votes were taken, they were unanimous.	The degree plan in the catalog for AY 23-24 is more student-friendly and we have created advertisements based on its effect. Future assessment will be done regarding graduation and persistence rates and total number of majors.

Comments on part II: