

UCSD Department of Mathematics

Math Placement Data and Early Math Courses: 2019-2025

UC San Diego's Senate-Administration Workgroup (SAWG) Report on Admissions has generated a great deal of public commentary. An article published in *Just Equations*, "Remedial Enrollments Surged at UCSD Amid Shifting Placement Testing Conditions", hypothesized that a change in the policy regarding the use of calculators on the Math Placement Exam (MPE) in 2024 may be largely responsible for the increase in the number of students placing into preparatory (pre-college) math courses. We are confident that this is a misinterpretation of the data, and that the change in calculator policy played at most a minor role in the increase. This document gives a concise analysis of the trends in student placement in all math courses below calculus, over the period 2019-2025, focusing on the relationship between changes in UCSD's internal practices and the rising number of students requiring preparatory math.

There are four courses in question: Math 2, 3B, 3C, and 4C. The latter two are flavors of precalculus and have been offered for decades. Math 2 was introduced in 2016 to cover high school topics. Math 2 was redesigned in 2023 to cover even more basic foundational topics from middle school mathematics, while a new course Math 3B, introduced in 2024, now covers high school mathematics. The chart below shows annual enrollments in these courses.

	Total Enrollment	Math 2	Math 2/3B	Math 2/3B/3C/4C	UCSD LCFF+ Enrollment
Fall 2019	5997	48 (0.8%)	48 (0.8%)	864 (14.4%)	1039 (17.3%)
Fall 2020	6449	32 (0.5%)	32 (0.5%)	897 (13.9%)	814 (12.6%)
Fall 2021	7516	191 (2.5%)	191 (2.5%)	1517 (20.2%)	894 (11.9%)
Fall 2022	6551	390 (6.0%)	390 (6.0%)	1852 (28.3%)	1790 (27.3%)
Fall 2023	6992	490 (7.0%)	490 (7.0%)	1891 (27.0%)	1850 (26.5%)
Fall 2024	7319	528 (7.2%)	916 (12.5%)	1576 (21.5%)	1799 (24.6%)
Fall 2025	7799	665 (8.5%)	921 (11.8%)	1283 (16.5%)	1553 (19.9%)

We note the following trends:

- The fraction of incoming students who placed into courses below calculus more than doubled from 2020 to 2022, and since then has fallen back close to where it started.
- The fraction of incoming students who placed into Math 2 increased dramatically (by a factor of 12) from 2020 to 2022, and since then has been more stable.
- In 2024, Math 3B came into existence. The fraction of new students who placed into Math 2 that year changed negligibly (rising from 7.0% to 7.2%), while the fraction of students who placed into Math 3C fell significantly. The new Math 3B students were mostly shifted from the former Math 3C population.

This timeline shows that the dramatic increase in the percentage of students placing into Math 2, and other courses below calculus, occurred in 2020-2022. During this time there was no change in the department's placement practices, and no change in the calculator policy on the MPE. Instead, the biggest increases in the Math 2 population coincided with changes in the university's admissions practices. The university stopped considering the SAT in admissions for the Fall 2021 cohort, while the percentage of students admitted from LCFF+ schools more than doubled between 2021 and 2022. Of course, the pandemic also surely had a substantial impact on these numbers.

In 2024, there was another major shift – not in Math 2 placements, but in the balance between lower (Math 2/3B) and higher (Math 3C/4C) pre-calculus placements. As a result of this shift, the percentage of students placed into Math 2 or Math 3B increased from 7.0% in 2023 to 12.5% in 2024, even though LCFF+ enrollment decreased slightly. These numbers (which appear on p. 25 of the SAWG Report on Admissions) were highlighted in the article “Remedial Enrollments Surged at UCSD Amid Shifting Placement Testing Conditions”. This shift did coincide with a change in the policy towards calculator use on the MPE, which went from “discouraged” to “disallowed” between 2023 and 2024. However, while it is possible the change in calculator policy contributed in a small way to this shift, by far the major contributor was a recalibration of the placement metrics.

The Mathematics Department regularly reviews the efficacy of the MPE and other placement measures in accordance with best practices (and the recommendation of the 2024 SAWG on Math Preparation) to make sure we are placing students correctly – at their best level to maximize success. In 2023, we had observed that the preparation of some of our Math 2 students had decreased to the point that a single quarter did not prepare them adequately for Math 3C. For example, the failure rate in Math 3C in the Fall of 2023 was 34%. To better support students, we redesigned Math 2 to focus on pre-high school Math, created Math 3B, and adjusted the criteria for placing into Math 3C. Many of the students who previously would have been placed into Math 3C were instead placed into Math 3B. We are confident that this was the primary driver of the jump in placement into Math 2/3B in 2024, not the change in calculator policy. Indeed, the number of students placing below Calculus (which was not affected by the new placement metrics) actually declined between 2023 and 2024, a strong indication that prohibiting the use of calculators on the placement exam did not prevent students from placing into Calculus. Continued analysis since then shows that the new placement metrics were indeed well-calibrated: students are now succeeding at a much higher rate in the courses they are placed into.

We note also that for 2024 and 2025, the department did make adjustments to how students were placed into Math 2. Therefore, the last two numbers in the third column of the table above are not directly comparable to the previous numbers. We estimate that without these changes, the percentage of students in Math 2 would have been slightly higher in 2024 and somewhat lower in 2025. Nevertheless, the changes made in 2025, which resulted in more students being placed into Math 2, were found to be necessary based on student outcomes during the previous

year. Math 3B was offered for the first time in Fall 2024, and the failure rates for the course in Fall 2024, Winter 2025, and Spring 2025 were 42%, 51%, and 37%, respectively. These extremely high failure rates demonstrated that students were being placed into Math 3B without the prerequisite knowledge to succeed in the course and led to adjustments in placement metrics. After these adjustments in Spring 2025, the Fall 2025 Math 3B failure rate decreased to 15%.

Finally, one other point is worth mentioning. The misguided focus on changing calculator use policy may stem from some confusion over Appendix 2 of the SAWG Report on Admissions. This appendix includes some sample questions drawn from a very basic skills test assessment that the Mathematics Department designed and administered to Math 2 students to understand more clearly where students had gaps. These are not the types of questions that are used on our placement tests. Using a calculator might have helped students in solving some of these problems. However, the questions on the MPE are more conceptual in nature, and access to a calculator would not substantially improve performance.