UNIVERSITY OF CALIFORNIA Institutional Research and Academic Planning

The calculus onramp: A review of mathematics course-taking among new UC freshmen and trends in introductory math enrollment

This analysis reviews findings from previous reporting on UC introductory mathematics outcomes and curricular structure and presents new data on 2025-26 introductory math enrollments, together with trends in mathematics course-taking among UC freshmen in their first year.[1] The key findings presented are as follows:

Most entering UC freshmen do not start in introductory math

- 40 percent of entering 2025 freshmen took an introductory math course in their first year.
- 60 percent either took another math course (29%) or didn't take any math course (31%) in their first year.

Less than seven percent of entering UC freshmen were not successful in introductory math.

- The share of students in the incoming 2025 freshman class that started in introductory math and were assigned a grade of D, F, W, or NP was 6.6 percent.

Systemwide enrollments in introductory math have fallen since 2021

- Two campuses (UC Riverside and UC Santa Cruz) saw enrollments increase.
- Six campuses saw declines, and one campus saw no change.

Figure 1 First math course taken by UC new freshmen in their first year, 2025

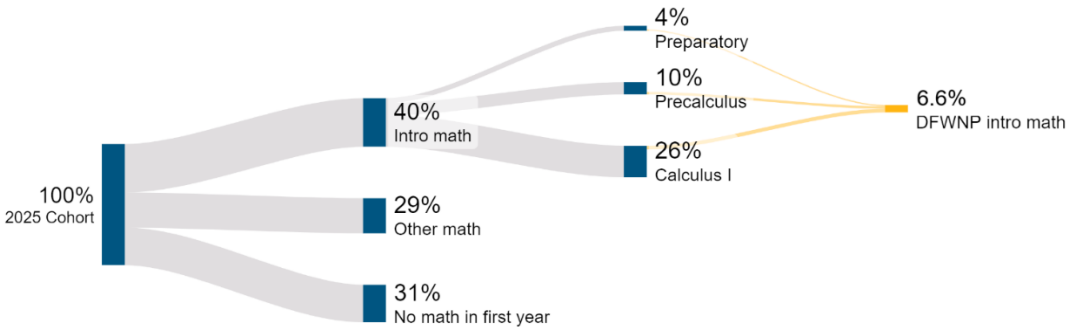


Figure notes: "Intro math" includes Calculus I, Precalculus, or a preparatory course that precedes Precalculus. "Other math" includes advanced calculus courses and other upper and lower division courses offered by the math department that are outside of the calculus sequence.

[1] A version of this report was submitted to the UC Board of Admissions and Relations with Schools (BOARS) on October 30, 2026. The current version includes additional data tables, updated enrollment counts, and a refined estimate of the 2025 cohort outcomes; it has also been edited for clarity.

Introduction

UC students take varied routes into mathematics, and those routes differ across campuses and fields of study. In 2025, about 40 percent of entering freshmen took preparatory math, Precalculus, or Calculus I in their first year, down from 46 percent in 2021; meanwhile, 4 percent started in preparatory math, up from 2 percent in 2021.

While general trends like these can be assessed and quantified, the complexity of the math ecosystem across UC is such that comparisons across campuses and even year to year within the same campus require careful contextualization. There are multiple reasons for variation.

- Math "placement" is the process by which students are guided to select their first math course (for those who need math). Placement is designed and administered at the campus level, and processes are highly variable. Moreover, campuses do not submit placement outcomes data to the system for review but instead manage their own processes, making system-level analysis untenable.

- Curricular structures are likewise managed at the campus level. Structural variation encompasses, among others, factors like the number and types of courses offered, whether courses incorporate additional "lab" hours for review of material, and other campus-specific adaptations and innovations in teaching. Given the specificity of each math curriculum to its campus and its degree programs, comparisons of math course-taking and outcomes across campuses require careful contextualization.

- Lastly, campuses also differ in how many students must complete a calculus sequence for their degree. The answer to this question is shaped by program requirements, general education requirements for quantitative reasoning and logic, and other campus-specific idiosyncrasies. As such, comparisons of outcomes across campuses (and even within campuses) can often involve a heterogeneous sample of students.

Given these caveats, the current report seeks to assess trends on introductory math from two perspectives. The first takes a cohort view and examines mathematics course-taking broadly among freshmen in their first year, asking, for example, how many students take math and where they start. The second analysis takes a curricular view and examines changes in freshman first-year enrollment and course-level outcomes for introductory math. The latter reprises outcomes data reported in July [2] and September [3] 2026 to the UC Board of Regents and updates course enrollment trends previously reported by IRAP in October 2025 [4].

---

[2] IRAP (July 2026). Report on retention and graduation rates [Discussion item]. Meeting of the Regents of the University of California. https://regents.universityofcalifornia.edu/regmeet/july26/b2.pdf

[3] IRAP (Sep 2026). UC STEM outcomes and math innovation [Discussion item]. Meeting of the Regents of the University of California. https://regents.universityofcalifornia.edu/regmeet/sept26/a1.pdf

[4] IRAP (Oct 2025). Adapting introductory math instruction at UC. https://www.ucop.edu/institutional-research-academic-planning/_files/adapting-introductory-math-instruction-at-uc.pdf

Introductory math as an onramp to calculus

Campus approaches to supporting first-year students and providing introductory mathematics courses vary. Some of this variation is captured in Table 1. As illustrated, UC Davis,[5] UC Riverside, UC San Diego, and UC Santa Cruz all offer preparatory mathematics courses: one or more courses that precede Precalculus, typically for workload credit (i.e., credit for financial aid, but not progress to degree). All UC campuses—except UC Santa Barbara—offer precalculus courses, and all UC campuses offer Calculus I together with at least one additional calculus series for business/social science, physical science, or life science majors that focuses on concepts and approaches that align with those disciplinary areas.

Campuses continuously innovate to better support students through introductory math

There is further variation in whether campuses may offer a co-course or laboratory section that provides additional support and runs alongside Calculus or Precalculus. Campuses may also offer an expanded course that meets for extra hours to reinforce background concepts or an extended "stretch" version of a course that converts a standard single course into a two-course sequence. All campuses utilize at least one of these approaches, but their mix and the specifics of delivery are highly variable. See the IRAP report Expanding opportunity: Chemistry, Math and the future of STEM at UC for a detailed review.

Table 1 Variation in introductory math curricula at UC

Campus	Offers preparatory levels before calculus	Offers Precalculus	Offers co-course, lab, expanded or stretch	Offers calculus paths by discipline
Berkeley		yes	yes	yes
Davis	up to 3 (all workload)	yes	yes	yes
Irvine		yes (1 is workload)	yes	yes
UCLA		yes	yes	yes
Merced		yes	yes	yes
Riverside	up to 2 (1 is workload)	yes	yes	yes
San Diego	up to 2 (1 is workload)	yes	yes	yes
Santa Barbara			yes	yes
Santa Cruz	1	yes	yes	yes

[5] While UC Davis lists three preparatory math courses in its course catalog (elementary algebra, trigonometry, and intermediate algebra), enrollment counts for UC Davis workload courses are not included in end-of-term files. As such, throughout this report counts for preparatory and some precalculus courses at UC Davis are incomplete and estimates for UC Davis should be interpreted with caution.

Placement practices vary

Selecting a first math course is an important decision with repercussions for a student's ability to complete a degree in an intended field and to do so in normative time. Campus approaches to placement, the process by which students who will need math are guided to select their first course, vary widely. Many students can "place" into calculus or advanced calculus based on AP and IB scores. In some cases, students may also earn credit for completion in this way. For many students, however, placement is dependent on the student's score on a campus-administered placement diagnostic or exam. Exam placement models across UC fall into three broad types.

- UC Berkeley's Math Diagnostic Test is nonbinding: it helps guide students but does not set placement cutoffs.
- UC Irvine, UCLA, UC Riverside, and UC Santa Cruz use ALEKS PPL,[6] an adaptive software platform that customizes each test—and each testing experience—to the student's performance during administration. Students must demonstrate sufficient mastery of certain concepts to move on to more advanced questions. Students can prepare for the exam using ALEKS study modules, and many campuses permit students to retake the ALEKS exam, but only after completing a set number of hours of independent study using the ALEKS review modules. Rules for retakes and required study time before a retake vary by campus, as do the score thresholds used for placement into preparatory math, precalculus, or calculus.
- The remaining campuses, UC Davis, UC Merced, and UC San Diego, use their own online assessments, designed by the CSU/UC Mathematics Diagnostic Testing Project (MDTP), which is a grant-funded program in California that provides diagnostic math readiness and preparedness assessments for secondary and post-secondary students and teachers. Each campus uses its own version of the test, and each has its own rules governing calculator use, cost, and retakes. Students can prepare for the exam using study modules developed by MDTP.

The route to Calculus I can be short or long

Depending on a student's campus and major, the route to Calculus I could be as short as one course, as at UC Santa Barbara,[7] or up to five courses, as at UC Davis, UC Riverside, and UC San Diego. Table 2 shows examples of the longest available routes. Note, however, that these longest routes are not the typical or required sequence for every student. Rather, a student's specific course sequencing will depend on placement, prior coursework or credit, and intended field of study.

---

[6] In 2025-16, UC Davis, UC Santa Barbara, and UC Santa Cruz piloted the use of ALEKS software in their summer bridge programs to help students fill gaps in knowledge and to prepare for placement exams for math and chemistry. See IRAP (2016) Adaptive Learning Technology Pilot Report. https://www.ucop.edu/institutional-research-academic-planning/_files/BFI-Adaptive-Learning-Technology-Report.pdf

[7] UC Santa Barbara is unique among UC campuses in offering no precalculus or preparatory courses. In addition to the standard calculus sequence and sequences for social sciences and life sciences, UCSB also offers an expanded sequence that meets for an extra hour per week and incorporates concepts from algebra and trigonometry. See https://www.math.ucsb.edu/undergraduate/course-placement-information; https://catalog.ucsb.edu/departments/MATH/courses

Table 2 Longest potential route to Calculus I by campus

Campus	Longest path to Calculus I
UCD	(5) Intro algebra ⟶ Trigonometry ⟶ Intermediate algebra ⟶ Precal ⟶ Calc I
UCSD	(5) Intro to college math ⟶ Foundations of Precal ⟶ Precal (Default) ⟶ Precal for Sci/Eng ⟶ Calc I for Sci/Eng
UCR	(5) College math fundamentals ⟶ Algebra ⟶ Precal A ⟶ Precal B ⟶ Calc I
UCI	(3) Precal A ⟶ Precal B ⟶ Calc I
UCB	(2) Precal or Foundations ⟶ Calc I
UCLA	(2) Precal ⟶ Calc I
UCM	(2) Precal ⟶ Calc I
UCSC	(2) Precal ⟶ Calc I
UCSB	(1) Calc I

For students who begin below Calculus I, completing prerequisite courses can delay access to calculus and courses that depend on it, potentially extending time to degree or putting students out of sync with the schedule followed by their peers. As such, longer sequences can provide needed preparation, but each additional course also creates another transition point where students may pause or leave the sequence.

This concern has led some campuses to try other ways of supporting students while they progress through a course. Extended courses and co-courses provide additional instruction alongside precalculus or calculus. These models aim to address gaps in preparation with more immediate support, without requiring students to complete a separate sequence of prerequisite courses.

To mitigate the impacts of additional preparatory courses, UC San Diego offers quarter-by-quarter modified major plans that track a route for students who do not start directly in Calculus I to nonetheless complete their degree in four years.

Most entering freshmen do not start in introductory math

Given the variation in placement practices and in curricular structure, together with the fact that not all students are required to complete a placement exam, it can be hard to gauge the preparation of successive incoming cohorts of UC freshmen. Placement outcomes for those students who do take an exam are not reported to the system, and enrollments in introductory math offer a poor proxy, as they "miss" students who test or place out of Calculus I as well as those students who meet degree requirements through course-taking in statistics, data science, or within their own discipline.

To get at the question of math readiness, specifically readiness for Calculus I, we conducted an analysis of mathematics course-taking by entering 2025 freshman in their first year at UC. We asked how many students attempted a math course in the first year and, when they did, what they took as their starting course. We then compared starting points and outcomes for the 2021 and 2025 incoming freshman cohorts.

In 2025, about 40 percent of new UC freshmen took an introductory math course in their first year, that is, they enrolled in a preparatory course, Precalculus, or Calculus I, as defined in Appendix 1. Another 29 percent also took a math course in their first year but started either in an advanced calculus course or in another math course outside of the calculus sequence. The remaining 31 percent of the incoming 2025

freshman class did not take a mathematics course in their first year. (Students who took a quantitative course offered through another department, e.g. data science or statistics, but took no course within the math department, were counted as "no math in the first year.")

Figure 2 First math course taken by new freshmen in their first year, 2025



Starting in introductory math is most common among life science majors

Overall rates of first-year math course-taking partly reflect differences in curricular requirements across fields. They may also reflect students' math course-taking in high school (number of math courses and whether those were honors or AP), which may itself be related to intended field of study.[8]

For example, 78 percent of life sciences students entering as freshmen in 2025 took a math course in their first year at UC, and most (57 percent) started in introductory math (preparatory, Precalculus, or Calculus I). Students in social sciences/psychology who entered as freshmen had a lower overall first-year math-taking rate (46%) but were also roughly three times as likely to start in introductory math as in advanced calculus or another non-calculus course (33% versus 13%). New freshmen in engineering/computer sciences and physical sciences/math had overall first-year math-taking rates at or near 95 percent and were more likely to begin in advanced calculus or another math course than in introductory math.

[8] For the analyses reported here, intended field of study was identified by default as the student's major during the term they enrolled in their first math course. In cases at UC Berkeley and UC Santa Cruz, where a large number of students are admitted as undeclared, the intended major reported on the student's application for admission was used instead.

Table 3 First math course taken by new freshmen in their first year, by intended field of study, 2025 cohort

Intended field	Prep, Precal, or Calc I	Other math or advanced calc	No math first year	Total
All disciplines	40%	29%	31%	100%
Life sciences	57%	21%	22%	100%
Professional fields	46%	14%	39%	100%
Multi /inter-disciplinary/misc.	41%	24%	35%	100%
Health professional & clinical sciences	40%	12%	48%	100%
Engineering/computer sciences	37%	57%	6%	100%
Social sciences/psychology	33%	13%	55%	100%
Physical sciences/math	32%	63%	5%	100%
Humanities	23%	14%	63%	100%
Arts	13%	6%	81%	100%

Source: UC course enrollment file (end of term); darker shading indicates larger share.

The share of new freshmen starting in introductory math varies from 19 to 72 percent across campuses

Across campuses, the share of new freshmen who started in introductory math ranged from 19 percent at UC Irvine to 72 percent at UC Merced. UC Merced also had the lowest share with no first-year math course taken (15%), while UC Irvine had the highest (48%).[9] The share who started in advanced calculus or another math course was highest at UC San Diego (45%) and UC Berkeley (38%) and lowest at UC Merced (13%).

Variation across campuses is expected, given different relative concentration of students within majors that require calculus. Nonetheless, first-year course-taking can vary across campuses within the same field. Among engineering and computer sciences students, 81 percent at Merced began in introductory math, compared with 37 percent systemwide. At most other campuses, students in these fields were more likely to begin in advanced calculus or another math course. Among arts and humanities students, rates vary widely as well. At Berkeley, 56 percent of humanities students and 49 percent of arts students took a math course in their first year, compared with 37 percent and 19 percent systemwide, respectively.[10]

[9] Comparatively high rates of no math taking in the first year at UC Irvine may be driven by lower than average math course-taking among Biological Sciences majors in their first year. While UC Irvine offers a calculus sequence specifically for students in Biological Sciences (one of its larger disciplines), the sample program published in the UC Irvine course catalog shows calculus course-taking in the second year. If this is standard guidance for Biological Sciences students, it may help to explain suppressed rates in the first year.

[10] Relatively high rates of first-year math course-taking among Arts and Humanities majors at UC Berkeley may be shaped by the range of options available to students in the College of Letters and Sciences to complete a quantitative reasoning general education requirement. The College of Letters and Sciences is a large division with roughly forty academic departments and roughly sixty majors.

Table 4 First math course taken by new freshmen in their first year, by campus, 2025 cohort

Campus	Prep, Precal, or Calc I	Other math or advanced calc	No math first year	Total
System	40%	29%	31%	100%
Merced	72%	13%	15%	100%
Riverside	53%	15%	32%	100%
Santa Cruz	50%	17%	33%	100%
Davis [11]	48%	17%	35%	100%
Los Angeles	41%	31%	28%	100%
Berkeley	36%	38%	26%	100%
Santa Barbara	35%	33%	32%	100%
San Diego	34%	45%	20%	100%
Irvine	19%	33%	48%	100%

Source: UC course enrollment file (end of term); darker shading indicates larger share.

Systemwide, freshman enrollments in introductory math have declined

While introductory math enrollments are not a reliable proxy for student math readiness (for the reasons elaborated above), trends in freshman enrollments are nonetheless an important indicator for understanding how UC campuses are adapting their programs to meet the needs of incoming students, especially as those needs have been shaped in recent year by a combination of forces. These include a long-term statewide trend of low math achievement among middle and high school students, as well as the continued and varied impacts of the pandemic era on math learning. [12]

Introductory math courses and the supports that attend them can be resource intensive, requiring investments in instructional support staff and testing and advising infrastructure, among other needs. Understanding these demands is important, as the UC system has experienced significant growth in recent years, adding nearly 19,000 California FTE students, which is nearly equivalent to adding a new campus without building one. With this enrollment pressure, the size of incoming freshman classes has been increasing, and similar increasing pressure on introductory math enrollments would be expected.

However, a comparison of enrollments in introductory math (preparatory, Precalculus, and Calculus I) between 2021 and 2025 shows a decline. Table 5 compares the magnitude of the change in the entering freshman class size to that of enrollments in introductory math by freshmen in their first year.

[11] UC Davis estimates are affected by incomplete enrollment data for workload courses (see prior note) and should be interpreted with caution.

[12] See, for example, Ugo, I., & Assan, E. (2026, March). California's K–12 test scores: Data appendix. Public Policy Institute of California. https://www.ppic.org/wp-content/uploads/0326iufs-appendix.pdf

Table 5 Change in new freshman enrollments 2021 to 2025 and change in introductory math course enrollments for freshmen in their first year 2021-22 to 2025-26

	New freshman fall enrollment			*New freshman intro math course enrollment*		
	2021	2025	Change	2021-22	2025-26	Change
System	51,728	52,611	+2%	31,404	27,778	-12%
Berkeley	6,931	6,687	-4%	3,256	2,594	-20%
Davis [13]	7,482	6,805	-9%	5,319	3,917	-26%
Irvine	6,489	6,422	-1%	3,143	1,827	-42%
UCLA	6,584	6,551	-1%	3,084	2,862	-7%
Merced	2,410	1,983	-18%	2,640	2,038	-23%
Riverside	5,204	6,682	28%	4,351	5,805	+33%
San Diego	7,542	7,801	+3%	5,128	3,744	-27%
Santa Barbara	4,898	5,081	+4%	1,828	1,835	0%
Santa Cruz	4,188	4,599	+10%	2,655	3,156	+19%

Sources: UC student enrollment file (third week); [14] UC course enrollment file (end of term)

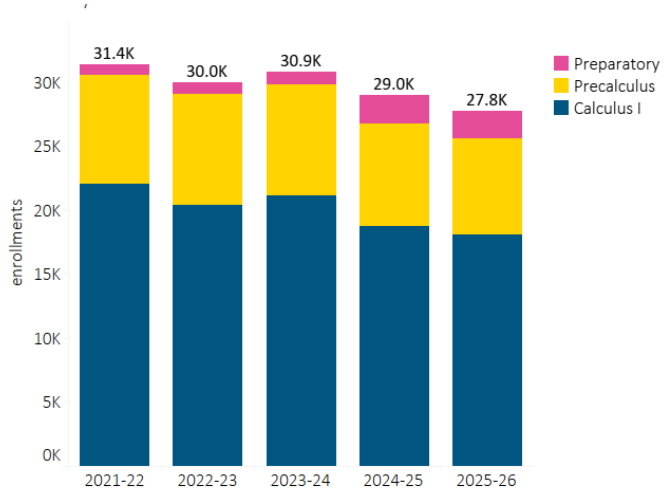
Note: Table 5, right panel, includes enrollments in Calculus I, Precalculus, and preparatory math for students in their first year who entered UC as freshmen. Counts include enrollments in main courses only (co-course enrollments are not included). For detail on total enrollments, including for continuing freshman and students who entered as transfers, see Appendix 2.

The decline in introductory math enrollments was observed at six campuses: UC Berkeley, UC Davis, UC Irvine, UCLA, UC Merced, and UC San Diego, while enrollments remained stable at UC Santa Barbara. At UC Riverside and UC Santa Cruz, where the entering freshman classes grew substantially, introductory math enrollments also increased. At both campuses, introductory math enrollments grew faster than the freshman class: 33 percent versus 28 percent growth at Riverside, and 19 percent versus 10 percent growth at Santa Cruz.

Figure 3 and Figure 4 illustrate this trend, showing how the share of enrollments has shifted over time. A detailed table is included in Appendix 3. [15]

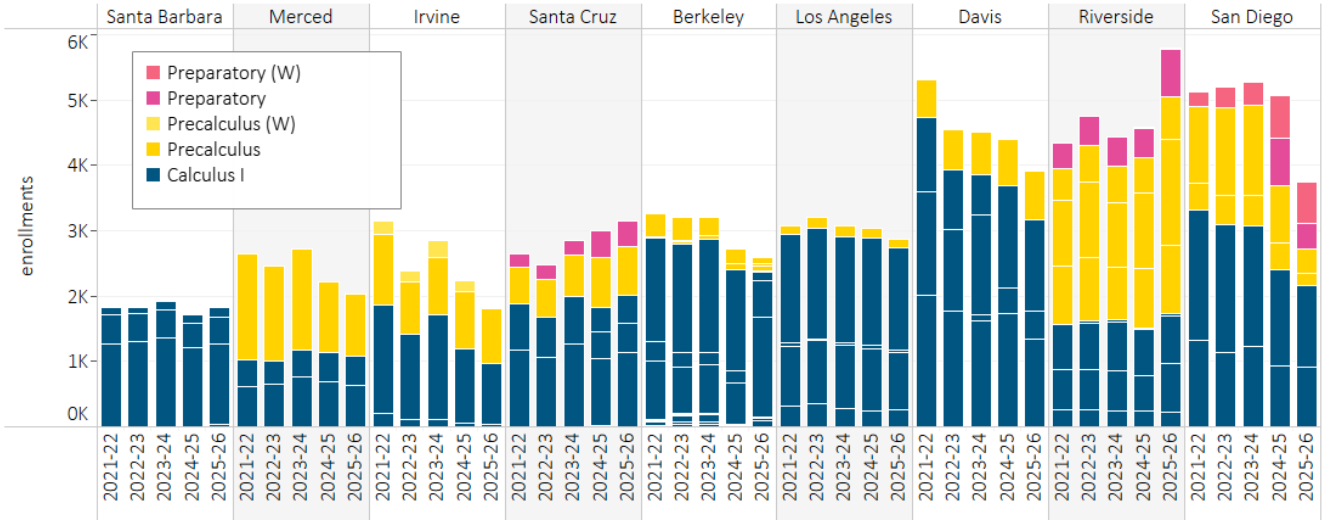
[13] UC Davis workload courses are not included in end-of-term enrollment files, so counts for preparatory and some precalculus courses are incomplete. Estimates for UC Davis in this table should be interpreted with caution.
[14] See UC Information Center Fall enrollment at a glance dashboard.
[15] Data in Figure 3 and Figure 4 include course enrollments for students who entered as freshmen during their first year. Enrollments for freshmen in their second year or beyond and for students who entered as transfers are not included. Restricting the data in this way offers alignment across the analysis of cohort math-taking presented here and with recent reports to the Regents on first-year freshmen course outcomes. Note also that course enrollments are duplicated counts: students may be counted more than once if they took more than one introductory math

Figure 3 Systemwide enrollments in introductory math courses by freshmen in their first year, by academic year



Source: UC course enrollment file (end of term)

Figure 4 Campus enrollments in introductory math courses by freshmen in their first year, by academic year[16]



Source: UC course enrollment file (end of term)

course in their first year. This differs from the cohort analysis (illustrated with flow diagrams) which counts each student only once, categorizing the student by the first math course taken.

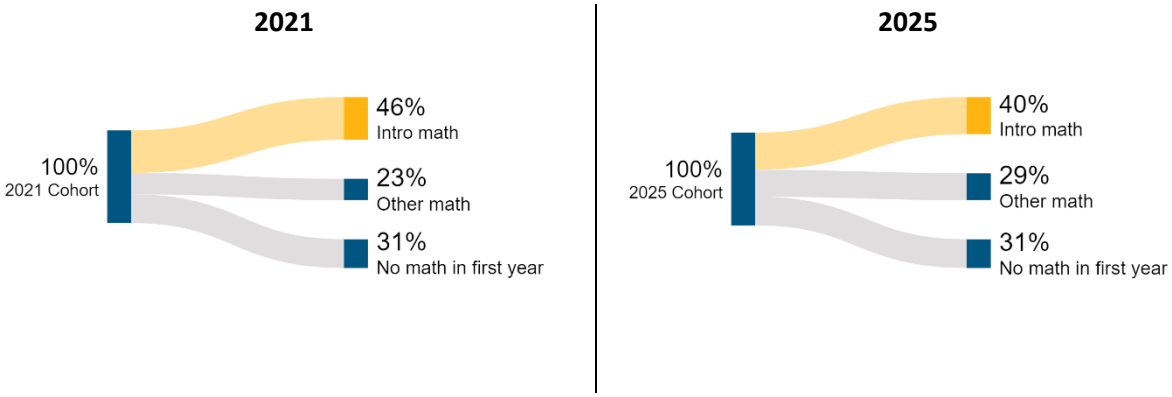
[16] UC Davis workload courses are not included in end-of-term enrollment files, so counts for preparatory and some precalculus courses are incomplete. Estimates for UC Davis in this table should be interpreted with caution. (W) indicates a course offered for workload credit only.

A smaller share of entering freshmen are starting in introductory math

As described already, most freshmen (around 70 percent) take at least one math class in their first year, but many of these do not start in introductory math. In 2025, about 40 percent of new UC freshmen took introductory math in their first year, whether a preparatory course, Precalculus, or Calculus I.

That share is smaller than it was in 2021, when 46 percent of entering freshmen took introductory math in their first year. At the same time, the share of students starting in an advanced calculus course or another math course outside of the calculus sequence in their first year has grown from 23 percent in 2021 to 29 percent in 2025. Meanwhile, the share of students not taking any math in the first year has remained stable, at 31 percent.

Figure 5 First math course taken by new freshmen in their first year, 2021 versus 2025



Four percent of 2025 entering freshmen started in preparatory math

As starting points for entering freshmen have shifted since 2021, a smaller share of students are entering through Calculus I (down 5 percentage points from 31 percent in 2021 to 26 percent in 2025) and a smaller share are entering in Precalculus (down 3 percentage points from 13 percent in 2021 to 10 percent in 2025).

Systemwide, the number of freshmen starting in preparatory math has grown by almost 1,100 students over five years, from about 800 students in 2021 to 1,900 in 2025. With this growth, the share of the incoming freshman class that starts in preparatory math has doubled from two percent in 2021 to four percent in 2025.

That four percent, however, is not evenly spread across campuses. Rather, the share of students starting in preparatory courses ranges from 8 to 11 percent across UC Riverside, UC San Diego, and UC Santa Cruz for 2025. At other campuses, where preparatory courses are not a part of the curriculum, that share is 0%. [17]

[17] UC Davis workload courses are not included in end-of-term enrollment files, so counts for preparatory and some precalculus courses are incomplete.

Figure 6 Entry points to introductory math, 2021 versus 2025

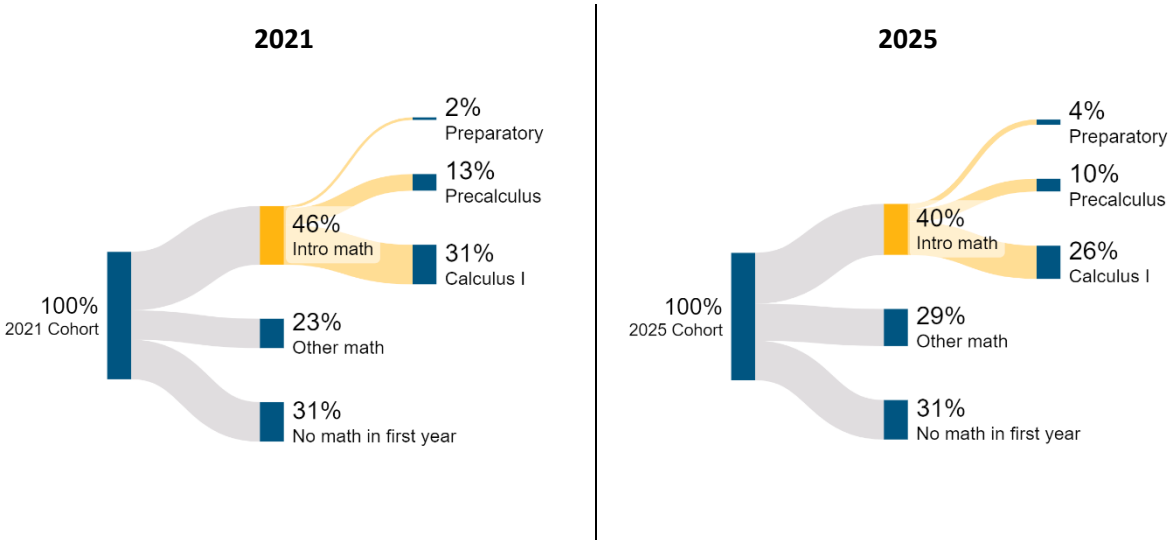


Table 6 First math course taken by new freshmen in their first year, 2025, by campus

Campus	Preparatory	Precalculus	Calculus I	Intro math total
System	4%	11%	26%	40%
Berkeley		3%	33%	36%
Davis	(unavailable) [18]	11%	37%	48%
Irvine		13%	6%	19%
Los Angeles		2%	39%	41%
Merced		41%	31%	72%
Riverside	11%	32%	10%	53%
San Diego	10%	4%	20%	34%
Santa Barbara			35%	35%
Santa Cruz	8%	9%	32%	50%

Source: UC course enrollment file (end of term)

[18] UC Davis workload courses are not included in end-of-term enrollment files, so counts for preparatory and some precalculus courses are incomplete. Estimates for UC Davis in this table should be interpreted with caution.

UC is monitoring freshman math outcomes

As described in a September 2026 report to the Regents, introductory math courses make up just 5 percent of all lower division course enrollments for students who entered as freshmen.

In introductory math courses, average grade point averages have historically been lower than GPAs in other courses—both in and outside of the math department. The average GPA for introductory math courses in 2025-26 was 2.71 as compared to 3.15 for other lower division math courses (versus 3.32 across all disciplines). [19]

For introductory math courses, DFWNP rates are also historically higher than average. In 2025-26 DFWNP rates for introductory math courses were roughly double the rate of other lower division math courses (17.8 percent versus 8.5 percent). Both of these were higher than the overall 2025 average of 6.7 percent.

The majority of students who take introductory math are successful

Despite higher-than-average course DFWNP rates, the majority of entering freshmen who take introductory math in their first year are successful. In 2025, among new freshmen who started in introductory math, 84 percent earned an A, B, C or passing grade. [20]

Table 7 Outcomes for first math course taken by UC new freshmen in their first year, 2025

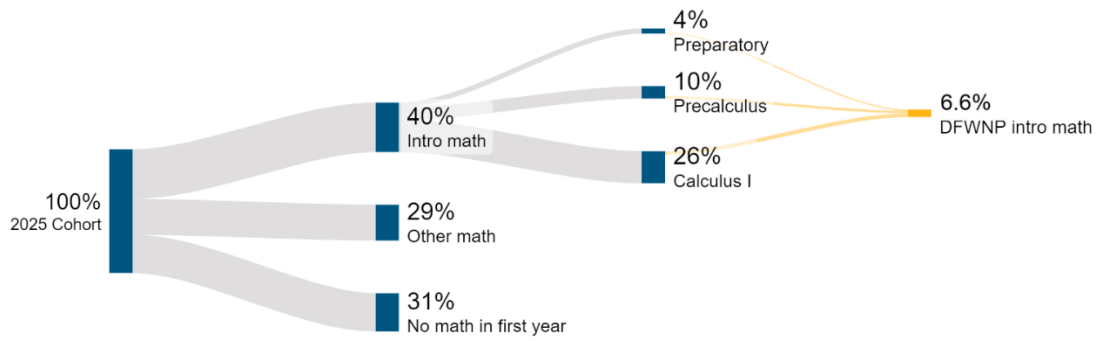
	Successful (A, B, C, Pass)	*Not successful (D, F, W, NP)*	*Total*
Preparatory	78.6%	21.4%	100%
Precalculus	77.2%	22.7%	100%
Calculus I	87.1%	12.9%	100%
All intro math	83.7%	16.2%	100%

In 2025, less than seven percent of the incoming freshmen were not successful in introductory math

Systemwide, nearly 18 thousand students attempted introductory math in their first year and were successful; just under 3,500 were unsuccessful. Taken as a proportion of the entire incoming freshman class, the share of new freshmen who started in introductory math and earned a D, F, W, or NP was 6.6 percent.

[19] See Appendix I of the Regents discussion item UC STEM Outcomes and math innovation (September 2026).
[20] The 17.8 percent DFWNP rate reported in the September Regents item (and cited above) represents a share of all introductory math course enrollments for freshmen in their first year. Thus a student who took more than one intro math course in their first year will be counted more than once. By contrast, the 16.2% DFWNP rate for students starting in introductory math includes only the student's first math enrollment in their first year.

Figure 7 First math course taken by UC new freshmen in their first year, 2025



Note: The 6.6 measure indicates the share of students in the incoming 2025 freshman cohort that started in introductory math and were not successful (assigned a grade of D, F, W, or NP).

Other measures of student success remain strong

UC's broader student success indicators remain strong. A July 2026 report to the Regents found that first-year freshman retention reached a record 93 percent for the most recent cohort, while four-year graduation rates reached a record 74 percent—up six percentage points since 2018.[21] Subsequent reporting (September 2026) showed that students who entered intending to major in STEM had high first-year retention (94 percent) and that STEM graduation rates have improved.[22] These systemwide and STEM-specific outcomes provide important context for understanding the challenges campuses face in delivering introductory math instruction. While trends in introductory math placement and course outcomes are an important indicator of student success, recent shifts have not coincided with broader declines.

Conclusion

Introductory math outcomes warrant continued attention. Students enter different courses through pathways that vary by campus and field, and grades in preparatory math, Precalculus, and Calculus I have declined while outcomes in most other lower-division courses have remained relatively steady. These courses can be a point of difficulty for many students and can pose a barrier to further study in STEM and even to earning a STEM degree.

At the same time, most freshmen who begin introductory math pass: in 2025, 84 percent earned a passing grade. Introductory math also accounts for a small share of lower-division course enrollments, and UC's first-year retention and four-year graduation rates have reached record highs.

---

[21] IRAP (July 2026). Report on retention and graduation rates [Discussion item]. Meeting of the Regents of the University of California. https://regents.universityofcalifornia.edu/regmeet/july26/b2.pdf

[22] IRAP (Sep 2026). UC STEM outcomes and math innovation [Discussion item]. Meeting of the Regents of the University of California. https://regents.universityofcalifornia.edu/regmeet/sept26/a1.pdf

Appendix 1. Courses included in analyses of "introductory math"

In this report, introductory math is used to refer to the various "onramps" to calculus, with a focus on the courses a student might enroll in to successfully enter and complete Calculus I.

The specific courses under consideration are Precalculus and Calculus I, as well as any preparatory courses that a campus may offer that precede Precalculus. Because "introductory math" as used here is focused on the path to Calculus I, the set of courses under consideration excludes courses in statistics, data science, and quantitative methods taught within other disciplines, as well as quantitative courses offered by mathematics departments that are outside the calculus sequence.

The listing below includes full credit, workload credit, and co-course offerings within campus introductory math curricula. Note that for the analyses reported here, only main course (not co-course) enrollments are included in enrollment counts to better ensure comparability in enrollment counts across course types.

Table 8 Cross-campus course list for introductory math classes

Campus	*Course type*	*Courses*
Berkeley	Precalculus	MATH 3, MATH 32, MATH N32, XMATH 3, XMATH 32
Berkeley	Calc I - Business/social sciences	MATH 16A, MATH N16A, XMATH 16A
Berkeley	Calc I - Default	MATH 1A, MATH 51, MATH N1A, XMATH 1A, XMATH 51
Berkeley	*Co-course for Calculus*	*MATH 1* [23]
Berkeley	Calc I - Life sciences	MATH 10A, MATH N10A, XMATH 10A
Davis	Preparatory (workload) [24]	MAT 000B, MAT 000C, MAT 000D (data not available)
Davis	Precalculus (workload)	WLD 910 (data not available)
Davis	Precalculus	MAT 012
Davis	Calc I - Business/social sciences	MAT 016A, MAT 019A
Davis	Calc I - Default	MAT 021A
Davis	Calc I - Life sciences	MAT 017A
Davis	*Co-courses for Calculus*	*WLD 911, WLD 912, WLD 913, WLD 921*
Irvine	Precalculus (workload)	MATH 1A
Irvine	Precalculus	MATH 1B
Irvine	Calc I - Default	MATH 2A
Irvine	*Co-course for Calculus*	*MATH 2AX*
Irvine	Calc I - Life sciences	MATH 5A
UCLA	Precalculus	MATH 0001
UCLA	Calc I - Default	MATH 0031A, MATH 0031AL
UCLA	Calc I - Life sciences	LIFESC 0030A, MATH 0003A
Merced	Precalculus	MATH 005
Merced	Co-course for Precalculus	MATH 005A
Merced	Calc I - Default	MATH 011
Merced	Calc I - Physical sciences	MATH 021
Riverside	Preparatory (workload)	MATH 003

[23] Students have the option to register for UC Berkeley's Math 1 as a co-course or a pre-course. For this analysis, it is treated as a co-course.

[24] UC Davis workload courses are not included in end-of-term enrollment files.

Riverside	Preparatory	MATH 004
Riverside	*Co-course for Preparatory*	*MATH 004L*
Riverside	Precalculus	MATH 005, MATH 005A, MATH 006A, MATH 006B
Riverside	*Co-course for Precalculus*	*MATH 06LA, MATH 06LB*
Riverside	Calc I - Business/social sciences	MATH 022
Riverside	Calc I - Default	MATH 005B, MATH 009A
Riverside	Calc I - Life sciences	MATH 007A
San Diego	Preparatory	MATH 3B
San Diego	Preparatory (workload)	MATH 2
San Diego	Precalculus	MATH 3C, MATH 4C
San Diego	Calc I - Default	MATH 10A
San Diego	Calc I - Physical sciences	MATH 20A
Santa Barbara	Calc I - Business/social sciences	MATH 34A
Santa Barbara	Calc I - Default	MATH 2A, MATH 3A
Santa Barbara	Calc I - Life sciences	MATH 34LA
Santa Cruz	Preparatory	MATH 2, MATH 2S
Santa Cruz	*Co-course for Preparatory*	*MATH 2T*
Santa Cruz	Precalculus	MATH 3
Santa Cruz	Calc I - Default	MATH 11A
Santa Cruz	Calc I - Life sciences	MATH 16A
Santa Cruz	Calc I - Physical sciences	MATH 19A, MATH 20A

Appendix 2. Growth in introductory math enrollments

Note that introductory math enrollments are not a reliable proxy for student math readiness. However, trends in freshman enrollments can still serve as an important indicator for understanding how UC campuses are adapting their programs to meet the needs of incoming students.

Table 9 Change in new freshman enrollments 2021 to 2025 and change in introductory math course enrollments 2021-22 to 2025-26

	New freshman fall enrollment			*New freshman intro math course enrollment*			*Total intro math course enrollment*		
	2021	2025	Change	2021-22	2025-26	Change	2021-22	2025-26	Change
System	51,728	52,611	2%	31,404	27,778	-12%	38,075	37,565	-1%
Berkeley	6,931	6,687	-4%	3,256	2,594	-20%	3,700	3,267	-12%
Davis [25]	7,482	6,805	-9%	5,319	3,917	-26%	6,296	5,233	-17%
Irvine	6,489	6,422	-1%	3,143	1,827	-42%	4,484	3,614	-19%
UCLA	6,584	6,551	-1%	3,084	2,862	-7%	3,547	3,426	-3%
Merced	2,410	1,983	-18%	2,640	2,038	-23%	3,248	2,857	-12%
Riverside	5,204	6,682	28%	4,351	5,805	+33%	5,461	7,801	+43%
San Diego	7,542	7,801	3%	5,128	3,744	-27%	5,838	5,069	-13%
Santa Barbara	4,898	5,081	4%	1,828	1,835	0%	2,347	2,370	+1%
Santa Cruz	4,188	4,599	10%	2,655	3,156	+19%	3,154	3,928	+25%

Sources: UC student enrollment file (third week); [26] UC course enrollment file (end of term)

Note: Table 9, middle panel, includes enrollments in Calculus I, Precalculus, and preparatory math for students in their first year who entered UC as freshmen. Counts include enrollments in main courses only (co-course enrollments are not included). Right panel shows total enrollments, including new freshmen, continuing freshmen, and students who entered as transfers, excluding co-course enrollments.

[25] UC Davis workload courses are not included in end-of-term enrollment files, so counts for preparatory and some precalculus courses are incomplete. Estimates for UC Davis in this table should be interpreted with caution.
[26] See UC Information Center Fall enrollment at a glance dashboard.

Appendix 3. Introductory course enrollments by campus

The table below provides an update to data presented in IRAP (Oct 2025)[27] with some differences to methodology. The current table is limited to enrollment counts for freshmen in their first year and excludes co-course enrollments to better ensure comparability in enrollment counts across course types.

Course enrollments are duplicated counts, i.e. a student who enrolled in more than one introductory math course in the academic year will be counted more than once. Multiple factors shape enrollment patterns, and first-year enrollments should not be interpreted as a proxy for placement outcomes.

Table 10 Introductory math enrollments for freshmen in their first year

			2021-22	*2022-23*	*2023-24*	*2024-25*	*2025-26*
System	Total		31,404	30,039	30,863	28,993	27,778
Berkeley	Total		3,256	3,214	3,203	2,719	2,594
Berkeley	Precalculus		346	418	332	308	205
Berkeley	Calculus I	Business/soc sciences	906	761	788	636	587
Berkeley	Calculus I	Default	1,691	1,787	1,855	1,581	1,652
Berkeley	Calculus I	Life sciences	313	248	228	194	150
Davis[28]	Total		5,319	4,544	4,519	4,392	3,917
Davis	Preparatory (W)	*(data not available)*					
Davis	Precalculus (W)	*(data not available)*					
Davis	Precalculus		575	607	667	702	744
Davis	Calculus I	Business/soc sciences	1,142	912	710	393	439
Davis	Calculus I	Default	2,020	1,766	1,616	1,740	1,338
Davis	Calculus I	Life sciences	1,582	1,259	1,526	1,557	1,396
Irvine[29]	Total		3,143	2,380	2,844	2,242	1,827
Irvine	Precalculus (W)		198	163	252	167	1
Irvine	Precalculus		1,077	796	882	883	865
Irvine	Calculus I	Default	1,659	1,311	1,605	1,136	920
Irvine	Calculus I	Life sciences	209	110	105	56	41
Los Angeles	Total		3,084	3,198	3,081	3,046	2,862
Los Angeles	Precalculus		131	158	180	156	118
Los Angeles	Calculus I	Default	1,236	1,321	1,251	1,202	1,139
Los Angeles	Calculus I	Life sciences	1,717	1,719	1,650	1,688	1,605

[27] Adapting introductory math instruction at UC. https://www.ucop.edu/institutional-research-academic-planning/_files/adapting-introductory-math-instruction-at-uc.pdf

[28] UC Davis workload courses are not included in end-of-term enrollment files, so counts for preparatory and some precalculus courses are incomplete.

[29] Data for workload precalculus (MATH 1A) at UC Irvine for first-year freshmen reflects counts reported in end-of-term files. The total enrollment count for MATH 1A in 2025-26 (including transfers and freshmen in their second year or later) is 30.

Merced	Total		2,640	2,454	2,726	2,212	2,038
Merced	Precalculus		1,614	1,439	1,543	1,067	949
Merced	Calculus I	Default	402	364	423	464	455
Merced	Calculus I	Physical sciences	624	651	760	681	634
Riverside	Total		4,351	4,761	4,441	4,586	5,805
Riverside	Preparatory (W)					11	27
Riverside	Preparatory		399	460	448	455	732
Riverside	Precalculus		2,383	2,681	2,348	2,604	3,313
Riverside	Calculus I	Business/soc sciences	263	262	247	235	216
Riverside	Calculus I	Default	606	652	643	565	780
Riverside	Calculus I	Life sciences	700	706	755	716	737
San Diego	Total		5,128	5,198	5,281	5,068	3,744
San Diego	Preparatory (W)		222	320	368	650	639
San Diego	Preparatory					720	384
San Diego	Precalculus		1,589	1,791	1,834	1,298	561
San Diego	Calculus I	Default	1,997	1,948	1,856	1,471	1,250
San Diego	Calculus I	Physical sciences	1,320	1,139	1,223	929	910
Santa Barbara	Total		1,828	1,818	1,912	1,724	1,835
Santa Barbara	Calculus I	Default	559	514	556	504	572
Santa Barbara	Calculus I	Life sciences	1,269	1,304	1,356	1,220	1,263
Santa Cruz	Total		2,655	2,472	2,856	3,004	3,156
Santa Cruz	Preparatory		212	209	226	416	403
Santa Cruz	Precalculus		553	578	643	760	735
Santa Cruz	Calculus I	Default	707	622	711	378	434
Santa Cruz	Calculus I	Life sciences				398	449
Santa Cruz	Calculus I	Physical sciences	1,183	1,063	1,276	1,052	1,135

Source: UC student enrollment file (third week)

Note: Counts include enrollments in Calculus I, Precalculus, and preparatory math for students in their first year who entered UC as freshmen. Enrollment counts include main courses only (no co-course enrollments). Blank cells indicate no enrollments reported, except as indicated for UC Davis workload courses, where data are incomplete.