Why do you need a follow up bill?

Just as budgets are a statement of values, course schedules are a statement about what colleges believe students should take. Despite research consistently showing that only a small fraction of students who start in remedial coursework actually persist and attain their degrees or successfully transfer, many colleges continue to dedicate substantial resources to remedial math courses in particular.

At 69 colleges, pre-transfer-level math sections constituted more than 20% of the introductory math offered in fall 2020. At one in five colleges, a third or more of students are still being enrolled in remedial courses and these students are disproportionately Black and Latino. Colleges with 2,000 or more Black students are twice as likely to be weak implementers of AB 705 as other colleges.

Unfortunately, seven colleges experienced a double-digit drop in the share of students going into transfer-level math between fall 2019 and fall 2020, and in all, 34 colleges saw increases in the number of first-time math students going into below transfer-level courses.

Are you banning all remedial courses?

No, in addition to the populations explicitly exempted from the bill, this bill makes clear that colleges that can demonstrate that pretransfer-level courses are more likely to lead to student completion of the transfer-level course appropriate to their program or major are still authorized to offer those courses.

The Validation of Practices analyses should not be seen as a one-off event. Colleges are encouraged to engage with their local data and try to better understand which courses are really serving students the best and helping them get on with their goals.

How are you making sure students have support in these more challenging courses?

Improving implementation through AB 1705 is not happening in a vacuum. Asm. Irwin is also actively working to secure additional resources for campuses, faculty, and students to support these changes through AB 1187, which is currently pending in the Senate and will enable colleges to claim apportionment credit for students receiving supervised tutoring in credit-bearing coursework. Additionally, Asm. Irwin is also spearheading a \$63 million budget allocation supporting corequisite and professional development for faculty.

What about student choice?

Community colleges, as open access institutions, need to be able to serve this wide range of students and their unique needs. Nevertheless, research in California and Florida

shows that even when pretransfer-level courses are optional, Black and Latinx students are more likely than their White or Asian peers to end up enrolling there. This is largely the result of structural racism, implicit bias, and stereotype threat. Colleges with 2,000 or more Black students are twice as likely to be weak implementers of AB 705 as other colleges.

Students will always be responsible for ultimately choosing which course to enroll in, but we have a responsibility to support students in completing transfer-level courses with concurrent support models that reduce total costs to students and their times to degree.

Students who completed or transferred with a remedial coursework history typically accumulate many more units (between 9.0 and 30.3) than those who began in transfer-level courses. Remedial units make up some, but not all, of those additional units. As a result of accumulating more total units, students taking remedial coursework incur higher enrollment fees than students who graduate or transfer without taking remedial coursework.

In addition to enrollment fees, students have to cover housing, food, books, supplies, and other expenses related to attending college. These additional units incurred by students with remedial coursework history can add up to an extra year or more of college, the total costs of which amounted to over \$20,000 dollars for California community college students in 2018-19.

What about students who drop a course before the census date? Why is that data not included?

Asm. Irwin appreciates faculty brining forward this concern because obviously we should be figuring out how to best serve those students – first by prioritizing additional support like tutoring. Proponents of the bill also want to note that there are many reasons why a student may sign up for a course and then drop it that are unrelated to AB 705. Their work schedule or family obligations may have changed or it may have been a placeholder for another course.

Collecting this data can be difficult given current technology limitations. Nevertheless, this kind of data can and should be collected at the local level and used to inform the analysis of whether these pre-transfer-level courses are actually helping students achieve their goals.

Why are concurrent supports necessary? Why shouldn't they be totally optional?

Rather than having students repeat courses they previously completed, AB 705 encouraged colleges to provide students who needed additional assistance with concurrent supports. These supports can take many forms, but it boils down to extra instruction or tutoring that provides for the opportunity for on-the-spot remediation and more of an individualized approach to filling knowledge or skill gaps.

Because some colleges found it challenging to make any form of support mandatory, students who otherwise would have benefited did not receive additional support that could have improved their chance of success. AB 1705 offers colleges greater flexibility to require students to enroll concurrent supports to help ensure their timely success and completion.

I recognize that students are often working, they might be parents and these responsibilities can make additional coursework difficult. However, research has found that students who completed or transferred with a remedial coursework history typically accumulate many more units than those who began in transfer-level courses. Remedial units make up some, but not all, of those additional unit. It is unlikely that a linked support course or regular tutoring would be too much of an obligation if it helps that student successfully complete a transfer-level course.

In "Rethinking remedial programs to promote college student success", published by the Brookings Institute, as of 2021, 24 states or individual higher education systems either allow or mandate corequisite learning supports instead of remediation. Of those 24 states, an in depth study examined remediation versus corequisite supports; and, found students placed in corequisite supports were 15% more likely to pass transfer-level math and 13% more likely to pass transfer-level English within one year than similar students who were placed into remediation.

Why has math been so hard? What about STEM?

The transition to AB 705 was both more complex and more abrupt in math than in English, largely because colleges needed to reimagine multiple pathways, including statistics and liberal arts math (SLAM) and business calculus, precalculus/college algebra, and math for elementary educators. As Asm. Irwin knows from her firsthand experience as often the only woman in her STEM courses in college, it is doubly important that we commit to making sure students of all backgrounds are supported and successful in these critical fields that lead to such good careers.

Ensuring a student is prepared to succeed in calculus-based STEM majors can be especially difficult, which is why AB 1705 provides an additional year to fully implement for students in those majors.

Why are success rates declining?

Prior to AB 705, Pre-AB 705, most students who began in remedial classes were lost to attrition (over 80%) without ever enrolling in a transfer-level class and pass rates were artificially inflated by colleges' incredibly restrictive access to transfer-level courses. When you look only at students who start in a transfer-level course, some decrease in success rates is to be expected, which is why concurrent supports are so important.

In fall 2015, more than 121,000 students who enrolled in math didn't complete the transfer-level requirement within a one-year time frame. Even if you extend the time frame to two years, there's more than 100,000 students who did not successfully complete the transfer-level requirement. These throughput rates were consistently less than 30 percent.

In fall 2019, after AB 705, nearly 73,000 out of 146,000 students successfully completed transfer-level math within one year, which gives a throughput rate of 50 percent.

What about career tech students?

AB 1705 explicitly exempts students in technical certificate or degree programs that have no English or math requirements and programs where there are specific requirements that are not met by an appropriate transfer-level course.

In some cases, like nursing where a bachelor's degree is essentially required, transfer-level statistics is appropriate because it reduces repeated coursework. In other fields, however, like auto tech, welding, and others, a de-contextualized transfer-level course is not appropriate. Many AA programs that do not have their own math and English requirements still require Intermediate Algebra, even though there are other options that are more contextualized to the student's field of study and interests.

Does AB 1705 ban Intermediate Algebra, which many AA programs use as their math requirement?

No, AB 1705 does not ban community colleges from offering intermediate algebra or other pre-transfer-level math courses or otherwise eliminate these courses. Colleges can continue to enroll CTE students in pre-transfer-level math courses, including intermediate algebra, if the CTE program has an advisory board or accrediting body that requires the pre-transfer-level math course.

As of Fall 2019, in Title 5 regulations (5 CCR § 55063), the math requirement for an associate degree is a course "at or above the level of the course typically known as intermediate algebra." Colleges are not required to use intermediate algebra as the graduation requirement for their local associate degree programs.

Colleges doing a good job with AB 705 implementation have developed much better math options at the transfer-level for students in CTE associate degree programs. Their students have choices like Technical Math for the Trades, Financial Literacy (often taught in the Business Department), Math For Everyday Living, or Liberal Arts math. These courses provide more meaningful mathematical and quantitative reasoning options for CTE students and all of these courses receive quantitative reasoning credit at the CSU–they are transfer-level courses. In addition, transfer-level courses like these have higher pass rates than intermediate algebra!

In 2006, at the advice of the Academic Senate of CA Community Colleges, the CCC Board of Governors agreed to increase the associate degree math requirement from Elementary Algebra (high school Algebra I, typically an 8th or 9th grade math class) to "a course at the level of Intermediate Algebra" (Algebra II, typically a 10th or 11th grade math class). At the time, the ASCCC promised the CCC BOG that they would work to develop and promote quantitative reasoning alternatives "at the level of intermediate algebra," but instead they actively fought alternative math pathways, as did the Council of Mathematics for California Community Colleges.

What about the STEM/calculus preparation pathway?

We acknowledge that the transition prompted by AB 705 has been particularly difficult for these pathways, given the additional amount of content that students must be familiar with to succeed. Given the additional time needed for faculty to adjust their course offerings for calculus-based STEM courses, the amendments provide an additional year to full implementation. Further, pre-calculus pathways of no more than two courses are permitted if they are transfer-level. This means that a two-course sequence of transfer-level trigonometry and pre-calculus is allowed under the bill.

Finally, under AB 1705, a college can continue to enroll any subgroup of students into a pre-transfer-level course if the course benefits the student per AB 705 evidence standards. In other words, colleges can recommend or require any courses that help students make progress toward their goals.

What role do practitioner beliefs play?

Beyond implementation logistics, however, is the issue of practitioner beliefs, something Asm. Irwin knows from her own experience as a woman in STEM at a time when she was lucky to have any other women in her sciences and engineering classes as UCSD.

Interviews by MMAP researchers found that, at colleges offering 85% or more transferlevel sections, practitioners "were more likely to support student capacity to succeed in

transfer-level courses," while at colleges with less than 65% transfer-level sections, practitioners were more likely to say "remedial courses are needed to accommodate students with lower skill levels."

Drawing upon their own interviews with faculty and administrators, PPIC researchers noted that "there are some faculty, who even when presented with data, find it difficult to believe students can be successful." Just as budgets are a statement of values, course schedules are a statement about what colleges believe students should take. Examining fall 2020 schedules, it is clear that most colleges continue to operate from a belief that many students do not belong in transfer-level math, and this belief is driving both lower completion and racial inequity.

How does AB 705 and 1705 affect adult learners returning to the classroom after several years, instead of recent high school grads?

CCCCO dashboard shows that post-implementation of AB 705, community colleges closed the transfer-level completion gap for older students, with those in the 35+ age range out-performing younger students. In math there were also improvements in completion for older students with gap closing for students 25-34 years old. (Completion here includes students beginning at all levels tracked for one year.) The argument made by AMATYC, a national professional development organization for community college math faculty, is influenced by the fact that many states do not have robust math pathways at the transfer-level like CA does. Many other states force everyone into college algebra, where of course students need fluency in lower level algebra skills. In CA as you know we have many different math options at the transfer-level, e.g. Statistics, Liberal Arts math, as well as courses in other departments like Financial Literacy, and all have better pass rates than college algebra.

PPIC study also showed that when given access to transfer-level coursework, older students outperform younger students by 9 ppts, but older students are also more likely to begin in pre-transfer-level math and this may account for the lower transfer-level math completion of students 35+years in age.