



Enrollment and Success in Math 10 and Math 48A in Fall 2018

Mathematics Dept. Presentation
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As of Fall 2018, ALL students could enroll in gateway, transfer-level math (compliant with AB 705):

- Math 10 (statistics)
- Math 48A (precalculus)

Supports added to help lower-achieving students succeed:

- Math 10 (statistics): Added tutors
- Math 48A (precalculus): Added a corequisite, Math 248A. [Math 48A also available as a stand-alone class that was open to students based on HS GPA and course completion.]



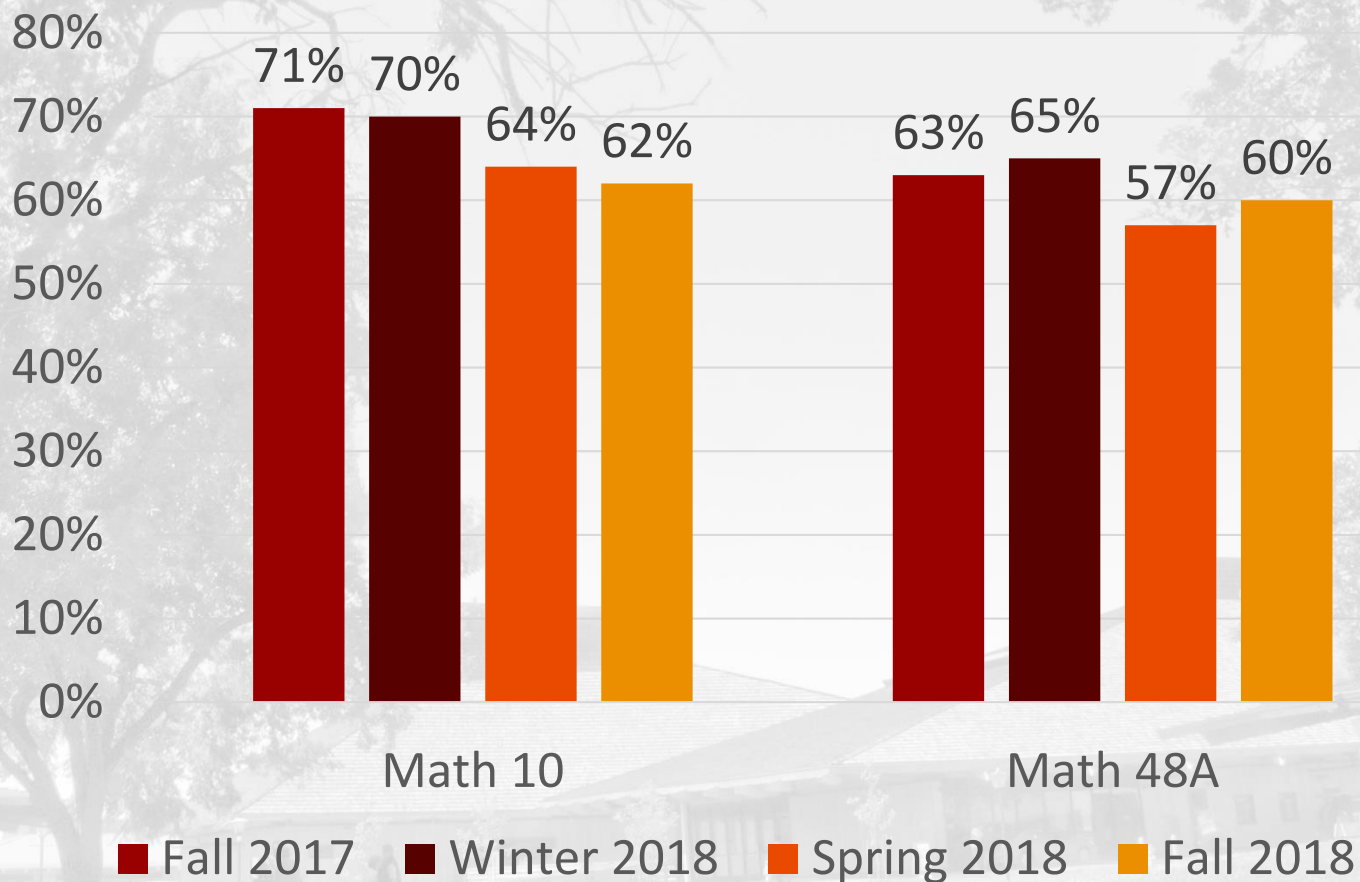
Questions:

- Was there a change in the number of students passing?
- Which students passed?
- Did tutors improve student success in Math 10?
- Did the corequisite improve student success in Math 48A?



Was there a change in the number of students passing?

- Fall 2018 pass rates declined from Fall 2017, but were similar to Spring 2018:





Was there a change in the number of students passing?

- Greater access led to greater enrollment, and an increase in the number of students passing:

	# Enrolled			# Passed		
	Fall 2017	Fall 2018	Gain	Fall 2017	Fall 2018	Gain
Math 10	619	896	277 (45%)	438	556	118 (27%)
Math 48A	264	364	100 (38%)	166	217	51 (31%)

- Math 10: 160 additional Latinx students enrolled and 63 additional Latinx students passed
- Math 48A: 77 additional Latinx students enrolled and 40 additional Latinx students passed



Which students passed?

- Disproportionate impact continues to exist in Fall 2018
 - Latinx students have significant gaps for both Math 10 and Math 48A
 - No significant improvement for Math 10 from Fall 2017
 - Some improvement for Math 48A: Latinx gap decreased 4 percentage points from Fall 2017



Did tutors improve student success in Math 10?

- Problem: Differences in success could be due to differences in students.
- Prior to Fall 2018:
 - Access based on combination of HS GPA and course completion, or high enough score on placement exam (Accuplacer).
 - Example: Math 10 if 12th grade HS GPA = 3.0 and student has passed algebra.
- Fall 2018:
 - All students have access to Math 10, including students with low HS GPAs



How do we control for differences in student achievement?

Compared Fall 2018 to **similar students** from Fall 2017 – Spring 2018. **Did not look at all students**, but able to make **causal inferences**.

- Step 1: Logistic regression on total data set to determine variables for matching (different between groups and related to success)
- Step 2: Match students on these variables
- Step 3: Logistic regression on matched data to look at effect of tutors



Did tutors improve student success in Math 10?

- Yes, but only for students with higher HS GPAs (logistic regression $p < .05$).
- Comparison of matched students:

	F17-Sp18		F18	
HS GPA Band*	Count	Passed	Count	Passed
GPA ≥ 3.0	119	72%	194	79%
GPA 2.3-2.9	117	44%	192	48%
GPA < 2.3	36	44%	59	34%

*HS GPA bands are from California Community College Chancellor's Office minimum placement recommendations for statistics.



Did the corequisite improve student success in Math 48A?

- Compared Fall 2018 Math 48A/248A students to **similar students** from Fall 2018 Math 48A stand-alone class. **Did not look at all students**, but able to make **causal inferences**.
- Fall 2018 Math 48A stand-alone class
 - Access based on combination of HS GPA and course completion.
 - Example: Math 48A if 12th grade HS GPA = 3.2.
- Fall 2018 Math 48A with Math 248A:
 - All students have access, including students with low HS GPAs



Did the corequisite improve student success in Math 48A?

- Yes (logistic regression $p < .01$).
- Comparison of matched students:

	No Coreq		Coreq	
HS GPA Band*	Count	Passed	Count	Passed
GPA ≥ 3.4	10	55%	22	77%
GPA 2.6-3.3	32	36%	69	64%
GPA < 2.6	25	41%	55	47%

*HS GPA bands are from California Community College Chancellor's Office minimum placement recommendations for precalculus.



Summary

- Fall 2018 pass rates in Math 10 and Math 48A declined from Fall 2017, but were similar to Spring 2018
- Greater access in Fall 2018 vs. Fall 2017 = more students enrolled and more students passed:
 - Math 10:
 - 45% gain (277 students) in # enrolled
 - 27% gain (118 students) in # passed
 - Math 48A:
 - 38% gain (100 students) in # enrolled
 - 31% gain (51 students) in # passed



Summary

- Disproportionate impact (DI) continues to exist in Fall 2018 .
- Math 10:
 - Latinx students have DI
 - No significant improvement from Fall 2017
- Math 48A:
 - Latinx students have DI
 - Latinx gap decreased by 4 percentage points



Summary

- Math 10 tutors improved student success, but only for students with higher HS GPAs
- Math 48A corequisite improved student success
- **Still to come: WHY** did higher-GPA students benefit from tutors but not those with lower HS GPAs? **WHAT ASPECTS** of the corequisite seemed to improve success?
- Data: student perceptions (survey results); student attendance at workshops and tutoring sessions in the Foundations Lab



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