

De Anza College Office of Institutional Research and Planning

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To: Math Department

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Subject: *Completion of College-Level/Transfer-Level Math Within One Year*

Purpose

With the implementation of AB 705 in fall 2019, colleges were given two years to collect data on completion of transfer-level Math within a one-year time frame based on a student's first course of enrollment in the discipline course, below transfer or at transfer level, and their educational goal.

Methodology

This analysis tracked students, who started for the first time in MATH210/212, MATH114, MATH109 or MATH130 in fall 2019, winter 2020, spring 2020, summer 2020 and fall 2020, to completion of either a college-level or transfer-level course within one year. One year is defined as four terms. For example, a student with a transfer goal who enrolled in MATH114 as their first course of enrollment in the discipline in fall 2019 would be tracked through summer 2020 to completion of any transfer-level Math course. Educational goals of certificate, degree or transfer were reported in the college application or updated in MyPortal. High school GPA data are based on high school transcript information used for assessment and placement into course levels and support. Throughput is defined as successful completion (grades A, B, C, or P) of either the degree or transfer level course. Below transfer-level enrollment is compared to students who started directly at college level or transfer level and successfully completed the course appropriate to their educational goal in one year.

Summary of Findings:

- For students with an educational goal of certificate, degree or transfer, throughput was maximized when they started directly in either a college-level or transfer-level course, based on their educational goal, when compared to students who started below a college-level course.
- For students with an educational goal of certificate or degree, throughput was maximized across all levels of high school preparation when starting directly in MATH114. However, for students with an educational goal of transfer, throughput was maximized across all levels of high school preparation when students started directly in a transfer-level course, rather than in MATH114.
- For students with an educational goal of certificate/degree or transfer, overall, throughput was maximized when starting directly at transfer-level rather than in MATH109 or MATH130.
- Students in all GPA bands have higher completion rates when enrolled directly into Statistics or Precalculus I with a corequisite than in a pre-transfer-level preparation course.

Successful Completion of Transfer-Level Math within One Year – Students Starting in MATH210 or MATH212

Table 1. Students with a Degree or Certificate Goal								
	Students Whose First Course of Enrollment was MATH210/212			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
MATH212: Beginning Algebra or MATH210: Pre-Algebra	Total Enrolled	Subtotal who Completed College-Level or Higher within One Year	Throughput Rate	Total Enrolled	Subtotal who Completed College-Level or Higher within One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
Overall	35	9	25.7%	330	252	76.4%	-50.6%	No
GPA Unknown	2	0	0.0%	5	4	80.0%	-80.0%	No
Highest GPA Band	2	1	50.0%	118	102	86.4%	-36.4%	No
Middle GPA Band	19	6	31.6%	145	113	77.9%	-46.4%	No
Lowest GPA Band	12	2	16.7%	62	33	53.2%	-36.6%	No

Table 2. Students with a Transfer Goal								
	Students Whose First Course of Enrollment was MATH210/212			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
MATH212: Beginning Algebra or MATH210: Pre-Algebra	Total Enrolled	Subtotal who Completed Any Transfer Level Course in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed Any Transfer Level Course in One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
Overall	144	29	20.1%	6181	4970	80.4%	-60.3%	No
GPA Unknown	9	2	22.2%	51	38	74.5%	-52.3%	No
Highest GPA Band	18	8	44.4%	2661	2384	89.6%	-45.1%	No
Middle GPA Band	62	14	22.6%	2336	1858	79.5%	-57.0%	No
Lowest GPA Band	55	5	9.1%	1133	690	60.9%	-51.8%	No

As displayed in Tables 1 and 2, throughput was maximized when students started directly in either a college-level math course or a transfer-level math course, based on their educational goal.

- Students with a certificate/degree goal who start in MATH210/212 complete a college level or higher math course within one year at a rate of 25.7%. Comparatively, students who started directly at college level, completed a college-level or transfer-level math course at a rate of 76.4%, a difference of -50.6 % points.
- Students with a transfer goal who started in MATH210/212 completed a transfer-level math course within one year at a rate of 20.1% compared to 80.4% for students who started directly at transfer level.
- When looking at students in the lowest GPA band, and an educational goal of certificate/degree, those who enrolled directly in a college-level math course had a 53.2% completion rate (62 students), or 36.6 % points above similarly prepared students who started below college level.
- Students in the lowest GPA band with a transfer goal, who enrolled directly into a transfer-level course, had a completion rate of 60.9% (1,133 students), or 51.8 % points above similarly prepared students who start below degree level. This finding suggests students with the lowest level of high school preparation, do well when placed directly into transfer-level math courses.

Successful Completion of Transfer-Level Math within One Year – Students Starting in MATH114

Table 3. Students with a Degree or Certificate Goal								
	Students Whose First Course of Enrollment was MATH114			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
Math114: Intermediate Algebra	Total Enrolled	Subtotal who Completed College-Level or Higher in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed College-Level or Higher in One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
Overall	121	101	83.5%	330	252	76.4%	7.1%	Yes
GPA Unknown	1	1	100.0%	5	4	80.0%	20.0%	Yes
Highest GPA Band	18	17	94.4%	118	102	86.4%	8.0%	Yes
Middle GPA Band	73	66	90.4%	145	113	77.9%	12.5%	Yes
Lowest GPA Band	29	17	58.6%	62	33	53.2%	5.4%	Yes

Table 4. Students with a Transfer Goal								
	Students Whose First Course of Enrollment was MATH114			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
Math114: Intermediate Algebra	Total Enrolled	Subtotal who Completed Any Transfer Level Course in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed Any Transfer Level Course in One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
Overall	453	127	28.0%	6181	4970	80.4%	-52.4%	No
GPA Unknown	3	0	0.0%	51	38	74.5%	-74.5%	No
Highest GPA Band	66	21	31.8%	2661	2384	89.6%	-57.8%	No
Middle GPA Band	197	45	22.8%	2336	1858	79.5%	-56.7%	No
Lowest GPA Band	187	61	32.6%	1133	690	60.9%	-28.3%	No

As displayed in Table 3, for students with an educational goal of certificate/degree, throughput was maximized across all levels of high school preparation when students started directly in MATH114. However, as displayed in Table 4, for students with an educational goal of transfer, throughput was maximized when students, across all levels of high school preparation, started directly in a transfer-level math course, rather than in MATH114.

- Students with a certificate/degree goal who started in MATH114 and completed MATH114 or higher within one year had a completion rate of 83.5%. Comparatively, students who started directly at transfer level, completed college-level or transfer-level math at a rate of 76.4%, a difference of 7.1 % points.
- Students with a transfer goal who started in MATH114 completed a transfer-level course within one year at a rate of 28.0% compared to 80.4% for students who started directly at transfer level.
- Among students with a transfer goal in the lowest GPA band, those who enrolled directly in a transfer-level math course completed a transfer-level course at a rate of 60.9% compared to similarly prepared students who started at MATH114 and had a transfer-level math completion rate of 32.6%, a -28.3 % point difference.

Successful Completion of Transfer-Level Math within One Year – Students Starting in MATH109

Table 5. Students with a Degree or Certificate Goal								
	Students Whose First Course of Enrollment was MATH109			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
	Total Enrolled	Subtotal who Completed College-Level or Higher in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed College-Level or Higher in One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
MATH109 - Statistics Preparation - Degree Applicable								
Overall	5	3	60.0%	330	252	76.4%	-16.4%	No
GPA Unknown				5	4	80.0%		
Highest GPA Band	1	1	100.0%	118	102	86.4%	13.6%	Yes
Middle GPA Band	2	1	50.0%	145	113	77.9%	-27.9%	No
Lowest GPA Band	2	1	50.0%	62	33	53.2%	-3.2%	No

Table 6. Students with a Transfer Goal								
	Students Whose First Course of Enrollment was MATH109			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
	Total Enrolled	Subtotal who Completed Any Transfer Level Course in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed Any Transfer Level Course in One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
MATH109 - Statistics Preparation - Degree Applicable								
Overall	37	8	21.6%	6181	4970	80.4%	-58.8%	No
GPA Unknown				51	38	74.5%		
Highest GPA Band	6	1	16.7%	2661	2384	89.6%	-72.9%	No
Middle GPA Band	18	6	33.3%	2336	1858	79.5%	-46.2%	No
Lowest GPA Band	13	1	7.7%	1133	690	60.9%	-53.2%	No

As displayed in Table 5, for students with an educational goal of certificate/degree, throughput was maximized for students in the highest GPA band when starting in MATH109 rather than at transfer level, though this is a sample size of 1. For all other GPA bands, throughput was maximized when students started directly at transfer level, though their comparison group represents only 2 students in each high school GPA band.

As displayed in Table 6, for students with an educational goal of transfer, throughput was maximized when students, across all levels of high school preparation, started directly in a transfer level course, rather than in MATH109.

Successful Completion of Transfer-Level Math within One Year – Students Starting in MATH130

Table 7. Students with a Degree or Certificate Goal								
	Students Whose First Course of Enrollment was MATH130			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
	Total Enrolled	Subtotal who Completed College-Level or Higher in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed College-Level or Higher in One Year	Throughput Rate	Throughput Rate Differences	Maximize Throughput?
MATH130: Intermediate Algebra for Precalculus								
Overall	12	8	66.7%	330	252	76.4%	-9.7%	No
GPA Unknown	0	0		5	4	80.0%		
Highest GPA Band	0	0		118	102	86.4%		
Middle GPA Band	7	6	85.7%	145	113	77.9%	7.8%	Yes
Lowest GPA Band	5	2	40.0%	62	33	53.2%	-13.2%	No

Table 8. Students with a Transfer Goal								
	Students Whose First Course of Enrollment was MATH130			Students Whose First Course of Enrollment was at Transfer Level			Throughput Rates	
	Total Enrolled	Subtotal who Completed Transfer-Level Course in One Year	Throughput Rate	Total Enrolled	Subtotal who Completed Transfer-Level Course in One Year	Throughput Rate	Throughput Rate Differences	8. Maximize Throughput?
MATH130: Intermediate Algebra for Precalculus								
Overall	90	35	38.9%	6181	4970	80.4%	-41.5%	No
GPA Unknown	2	2	100.0%	51	38	74.5%	25.5%	Yes
Highest GPA Band	10	5	50.0%	2661	2384	89.6%	-39.6%	No
Middle GPA Band	38	17	44.7%	2336	1858	79.5%	-34.8%	No
Lowest GPA Band	40	11	27.5%	1133	690	60.9%	-33.4%	No

As displayed in Table 7, for students with an educational goal of certificate/degree, overall, throughput was maximized when students started at transfer level. However, throughput was maximized for students in the middle GPA band when starting in MATH130 rather than at transfer level (7 students). For students in the lowest GPA band, throughput was maximized when students started directly at transfer level, rather than in MATH130 (5 students).

As displayed in Table 8, for students with an educational goal of transfer, overall, throughput was maximized when students started directly in a transfer level course, rather than in MATH109. However, students with an unknown GPA do benefit from enrolling into MATH130 over direct transfer level, though the sample size is 2.

Successful Completion of Transfer-Level Math with a Corequisite within One Year

Table 9. Students with a Transfer Goal				Table 9a. Students with a Transfer Goal			
	Students Whose First Course of Enrollment was MATH31/41				Students Whose First Course of Enrollment was MATH31/41Q		
MATH31/41: Precalculus I	Total Enrolled	Subtotal who Completed Transfer-Level Course	Throughput Rate	MATH31/41: Precalculus I	Total Enrolled	Subtotal who Completed Transfer-Level Course in One Year	Throughput Rate
Overall	811	647	79.8%	Overall	224	149	66.5%
GPA Unknown	1	1	100.0%	GPA Unknown			
Highest GPA Band	184	153	83.2%	Highest GPA Band	24	19	79.2%
Middle GPA Band	551	441	80.0%	Middle GPA Band	47	37	78.7%
Lowest GPA Band	75	52	69.3%	Lowest GPA Band	153	93	60.8%

- When comparing students who enrolled Precalculus I with or without support, students who enrolled in the standalone course had higher success rates in all GPA bands in comparison to students in the corequisite course.
- When comparing Precalculus I with support to completion rates of students who start in MATH130 (Precalculus Preparation), students who start directly in Precalculus with a corequisite have higher completion rates in all GPA bands than students who start in MATH130, 66.5% compared to 38.9%, respectively.

Table 10. Students with a Transfer Goal				Table 10a. Students with a Transfer Goal			
	Students Whose First Course of Enrollment was MATH32/42				Students Whose First Course of Enrollment was MATH32/42Q		
MATH32/42: Precalculus II	Total Enrolled	Subtotal who Completed Transfer-Level Course	Throughput Rate	MATH32/42: Precalculus II	Total Enrolled	Subtotal who Completed Transfer-Level Course in One Year	Throughput Rate
Overall	198	177	89.4%	Overall	41	31	75.6%
GPA Unknown				GPA Unknown			
Highest GPA Band	57	53	93.0%	Highest GPA Band	8	7	87.5%
Middle GPA Band	139	122	87.8%	Middle GPA Band	31	24	77.4%
Lowest GPA Band	2	2	100.0%	Lowest GPA Band	2	0	0.0%

- When comparing students who enrolled Precalculus II with or without support, students who enrolled in the standalone course had higher success rates in all GPA bands in comparison to students in the corequisite course, though completion rates in the corequisite course were above 75%.

Table 11. Students with a Transfer Goal				Table 11a. Students with a Transfer Goal			
	Students Whose First Course of Enrollment was MATH10				Students Whose First Course of Enrollment was MATH10Q		
MATH10: Statistics	Total Enrolled	Subtotal who Completed Transfer-Level Course in One Year	Throughput Rate	MATH10: Statistics	Total Enrolled	Subtotal who Completed Transfer-Level Course in One Year	Throughput Rate
Overall	2701	2075	76.8%	Overall	281	203	72.2%
GPA Unknown	27	21	77.8%	GPA Unknown	1	1	100.0%
Highest GPA Band	843	745	88.4%	Highest GPA Band	59	56	94.9%
Middle GPA Band	1146	897	78.3%	Middle GPA Band	123	93	75.6%
Lowest GPA Band	685	412	60.1%	Lowest GPA Band	98	53	54.1%

- When comparing students who enrolled Statistics with or without support, overall, success rates were rather similar across GPA.
- When comparing Statistics with support to completion rates of students who start in MATH109 (Statistics Preparation), students who start directly in Statistics with a corequisite have higher completion rates in all GPA bands than students who start in MATH109, 72.2% compared to 21.6%, respectively.