
High School To Community College Math Transitions

DRAFT

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Introduction

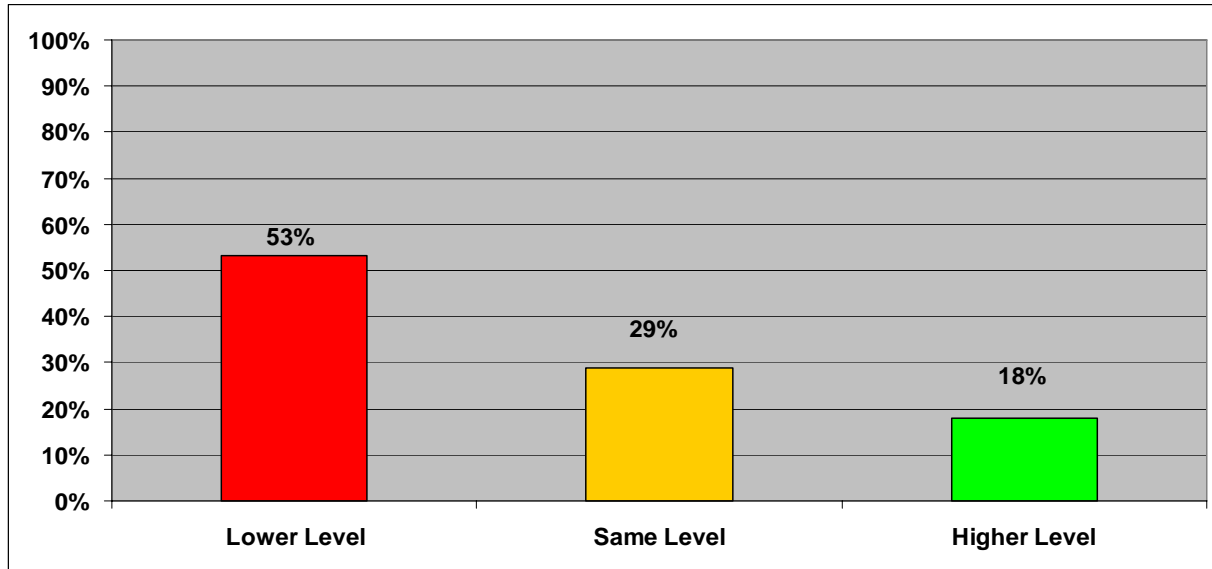
This report compares those students who complete a math course as seniors in high school and then enroll in a community college math course in the summer or fall after their graduation (“no break students”) vs. those students who take a break in their math course taking (“break students”). This break could be due to several factors, including not taking a math course in 12th grade or deferring enrollment in a community college math course to later semesters. The data below were from a local high school district and a local community college. Data were available from 2004 through 2007 for the high school district and 1999 through 2008 for the community college. The sample of high school students was chosen to ensure the students had the opportunity to attempt a math course in 12th grade and attempt a math course in community college. For example, students in 11th grade or lower in the 2006-2007 academic year are not included because they have not had the opportunity to attempt a math course in 12th grade. The following tables may provide an indication of the degree of alignment between high school and community college math curricula. Tables should be read row wise by selecting a high school math level and reading across that row to see what percent of those students took a given level of math in community college as their next math course (Tables 1, 3 and 5) and their success rate in that course (Tables 2, 4 and 6). Success is defined as earning a grade of C or better. Please note that the categories have been assigned by research staff and will need to be verified by local faculty. Tables 7 and 8 are provided for this purpose.

Summary

- No break students-Compared to the highest level attempted in high school, 49% of high school students' first community college math class attempts were lower level, 32% were equal level, and 20% were higher level.
- Break students-Compared to the highest level attempted in high school, 56% of students' math course attempts in their first community college math class attempts were lower level, 27% were equal level, and 17% were higher level.
- Two-thirds of no break students (64%) completed Intermediate Algebra or above in high school before transitioning to the local community college. Just over half (56%) of break students completed Intermediate Algebra or above.
- Just over half of no break students attempted Intermediate Algebra or above as their first community college math course as compared to 44% of break students.
- Overall success rates for the first community college math course were comparable (no break students 61% vs. break students 63%).

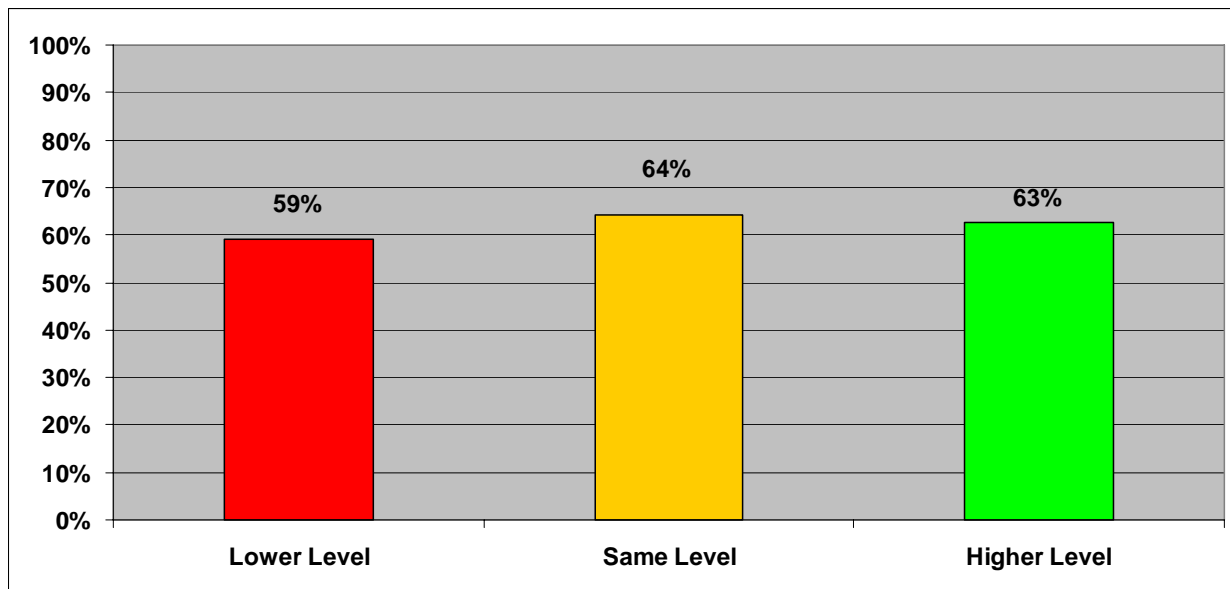
All Students

Chart 1. Math Transition From High School To Community College



Note: Percentages may not sum to 100% due to rounding.

Chart 2. Success Rates For Math Transition



Red = transitioned down at least one level from high school to community college,
Yellow = stayed at same level in community college as in high school,
Green = transitioned up at least one level from high school to community college.

All Students

Table 1. Math Transition From High School To Community College

		First math class attempted in community college								Total	
		Basic Math	Pre-Alg	Beg Alg	Geo	Int Alg	Stats/ Finite	Precalc	Calc	%	Count
Highest level of math in high school successfully completed	Basic Math	39%	24%	21%	0%	12%	*	*	0%	100%	109
	Pre-Alg	*	33%	33%	0%	*	0%	0%	0%	100%	18
	Beg Alg	34%	30%	28%	0%	7%	*	*	0%	100%	182
	Geo	17%	25%	43%	0%	12%	3%	*	0%	100%	206
	Int Alg	8%	9%	30%	0%	37%	9%	8%	*	100%	369
	Stats/ Finite	*	*	11%	0%	26%	34%	18%	7%	100%	125
	Precalc	0%	*	9%	0%	33%	20%	29%	6%	100%	174
	Calc	0%	0%	0%	0%	8%	19%	27%	47%	100%	75
	Total	174	178	307	0	282	136	125	56		1258

Note: Percentages may not sum to 100% due to rounding.

Table 2. Success Rates For Math Transition

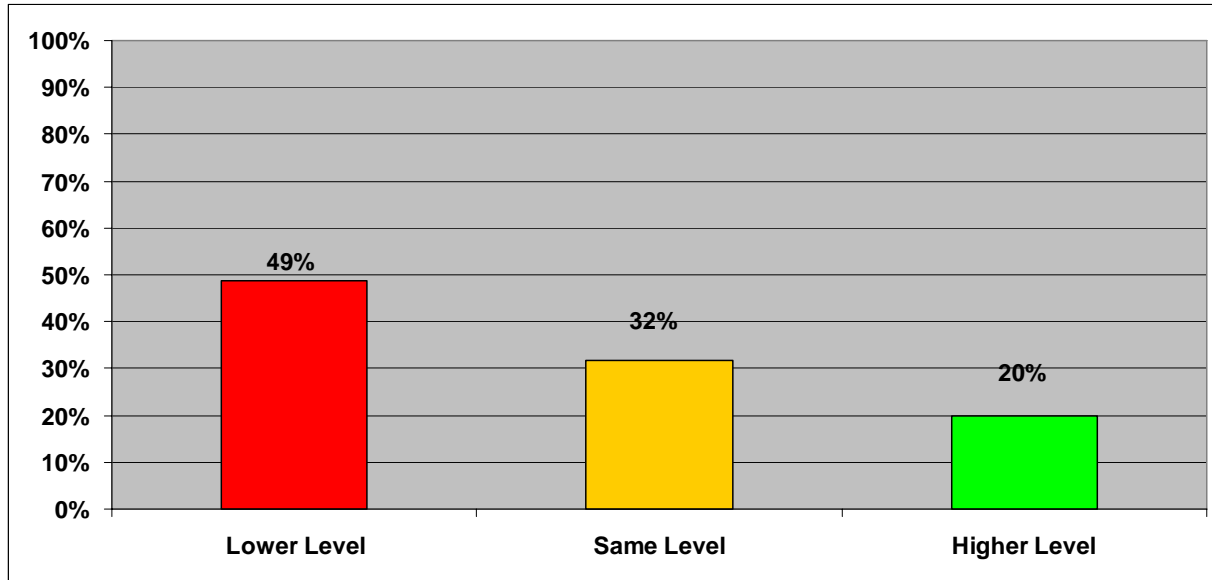
		First math class attempted in community college								Total
		Basic Math	Pre-Alg	Beg Alg	Geo	Int Alg	Stats/ Finite	Precalc	Calc	
Highest level of math in high school successfully completed	Basic Math	69%	50%	52%	-	54%	*	*	-	59%
	Pre-Alg	*	83%	50%	-	*	-	-	-	72%
	Beg Alg	69%	65%	61%	-	67%	*	*	-	66%
	Geo	66%	53%	55%	-	63%	86%	*	-	58%
	Int Alg	63%	53%	53%	-	61%	58%	61%	*	58%
	Stats/ Finite	*	*	79%	-	69%	76%	74%	78%	74%
	Precalc	-	*	69%	-	63%	37%	53%	82%	57%
	Calc	-	-	-	-	67%	64%	50%	77%	67%
	Total	68%	58%	57%	-	63%	60%	59%	77%	61%

* fewer than 5 students
 - no students

Red = transitioned down at least one level from high school to community college,
Yellow = stayed at same level in community college as in high school,
Green = transitioned up at least one level from high school to community college.

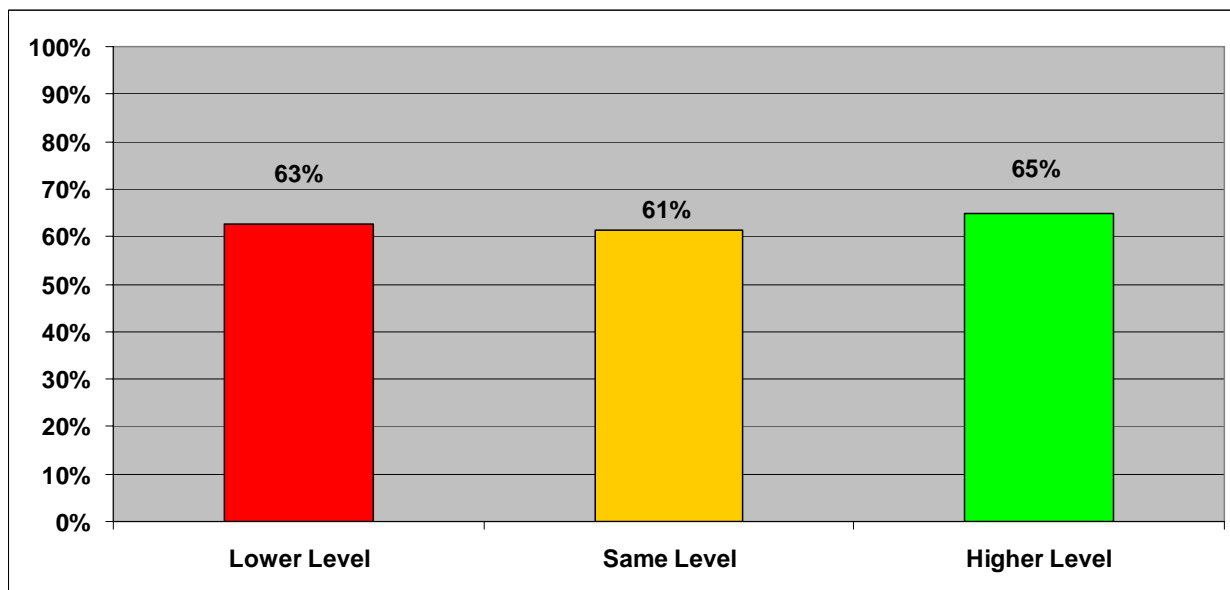
Students With No Break

Chart 3. Math Transition High School To Community College



Note: Percentages may not sum to 100% due to rounding.

Chart 4. Success Rates For Math Transition



Red = transitioned down at least one level from high school to community college,
Yellow = stayed at same level in community college as in high school,
Green = transitioned up at least one level from high school to community college.

Students With No Break

Table 3. Math Transition From High School To Community College

		First math class attempted in community college								Total	
		Basic Math	Pre-Alg	Beg Alg	Geo	Int Alg	Stats/ Finite	Precalc	Calc	%	Count
Highest level of math in high school successfully completed	Basic Math	38%	22%	20%	0%	16%	*	*	0%	100%	55
	Pre-Alg	0%	*	*	0%	*	0%	0%	0%	100%	6
	Beg Alg	33%	26%	26%	0%	13%	0%	*	0%	100%	72
	Geo	12%	25%	48%	0%	10%	*	*	0%	100%	60
	Int Alg	8%	7%	27%	0%	39%	10%	8%	0%	100%	147
	Stats/ Finite	*	*	12%	0%	25%	35%	18%	*	100%	57
	Precalc	0%	*	8%	0%	29%	14%	38%	7%	100%	90
	Calc	0%	0%	0%	0%	*	24%	38%	31%	100%	29
	Total	65	65	115	0	126	57	70	18		516

Note: Percentages may not sum to 100% due to rounding.

Table 4. Success Rates For Math Transition

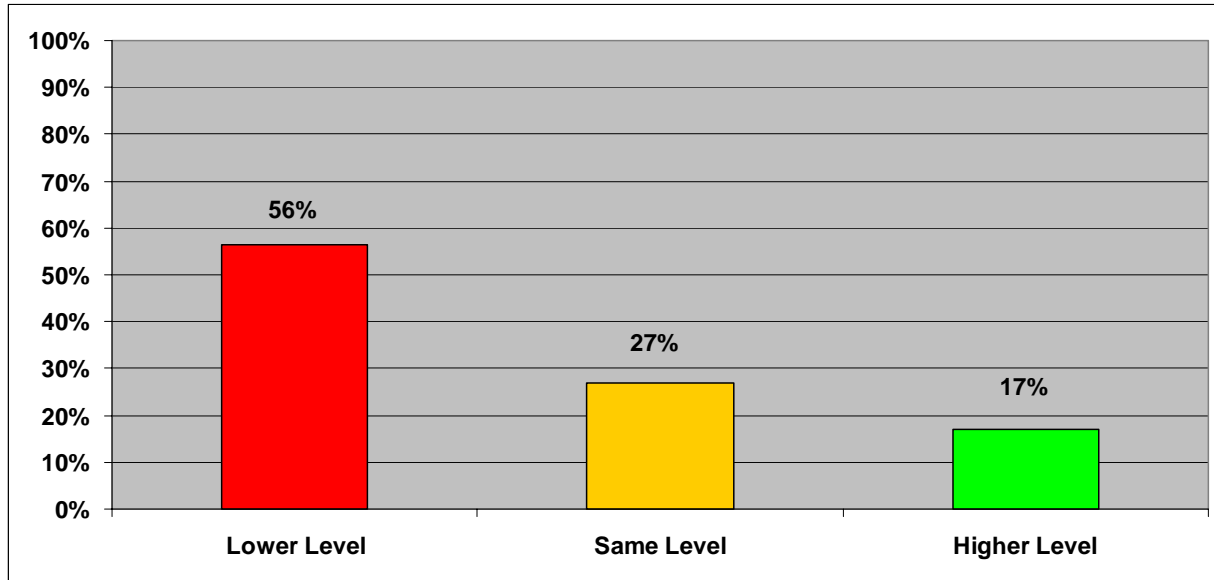
		First math class attempted in community college								Total
		Basic Math	Pre-Alg	Beg Alg	Geo	Int Alg	Stats/ Finite	Precalc	Calc	
Highest level of math in high school successfully completed	Basic Math	76%	42%	64%	-	44%	*	*	-	60%
	Pre-Alg	-	*	*	-	*	-	-	-	67%
	Beg Alg	71%	74%	74%	-	67%	-	*	-	72%
	Geo	57%	67%	48%	-	67%	*	*	-	58%
	Int Alg	75%	55%	50%	-	53%	64%	75%	-	57%
	Stats/ Finite	*	*	71%	-	86%	65%	80%	*	74%
	Precalc	-	*	71%	-	73%	46%	59%	67%	63%
	Calc	-	-	-	-	*	43%	64%	56%	55%
	Total	72%	62%	57%	-	63%	58%	67%	61%	63%

* fewer than 5 students
 - no students

Red = transitioned down at least one level from high school to community college,
Yellow = stayed at same level in community college as in high school,
Green = transitioned up at least one level from high school to community college.

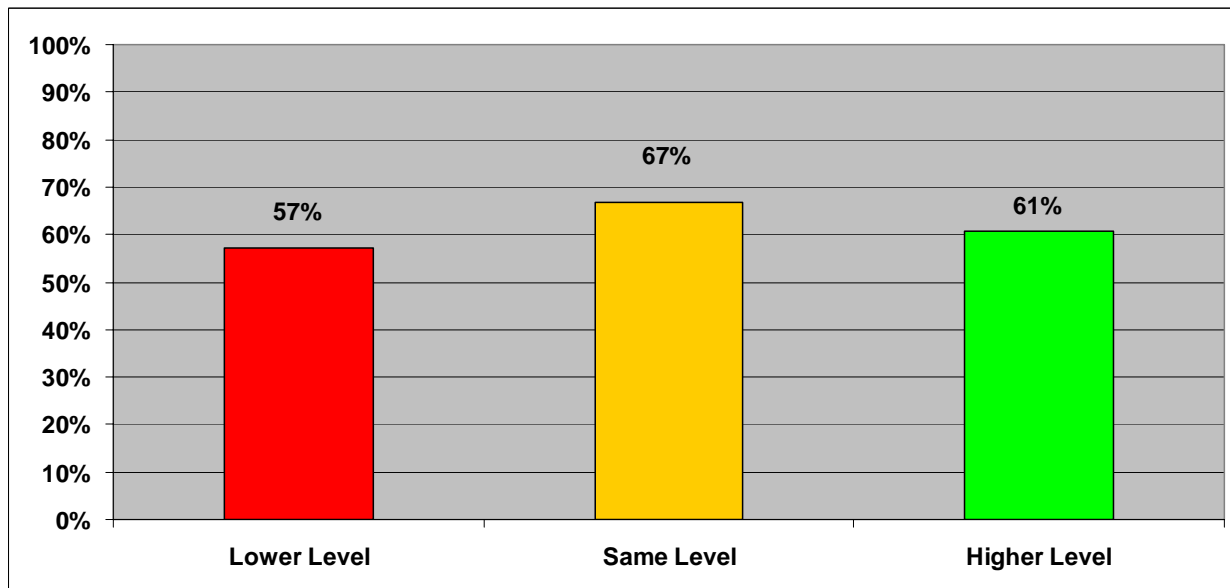
Students With Break

Chart 5. Math Transition High School To Community College



Note: Percentages may not sum to 100% due to rounding.

Chart 6. Success Rates For Math Transition



Red = transitioned down at least one level from high school to community college,
Yellow = stayed at same level in community college as in high school,
Green = transitioned up at least one level from high school to community college.

Students With Break

Table 5. Math transition From High School To Community College

		First math class attempted in community college								Total	
		Basic Math	Pre-Alg	Beg Alg	Geo	Int Alg	Stats/ Finite	Precalc	Calc	%	Count
Highest level of math in high school successfully completed	Basic Math	39%	26%	22%	0%	*	*	0%	0%	100%	54
	Pre-Alg	*	*	*	0%	0%	0%	0%	0%	100%	12
	Beg Alg	35%	33%	29%	0%	*	*	0%	0%	100%	110
	Geo	19%	25%	40%	0%	12%	*	0%	0%	100%	146
	Int Alg	8%	9%	31%	0%	35%	9%	7%	0%	100%	222
	Stats/ Finite	0%	*	10%	0%	26%	32%	19%	9%	100%	68
	Precalc	0%	0%	11%	0%	37%	26%	20%	6%	100%	84
	Calc	0%	0%	0%	0%	9%	15%	20%	57%	100%	46
Total		109	113	192	0	156	79	55	38		742

Note: Percentages may not sum to 100% due to rounding.

Table 6. Success Rates For Math Transition

		First math class attempted in community college								Total
		Basic Math	Pre-Alg	Beg Alg	Geo	Int Alg	Stats/ Finite	Precalc	Calc	
Highest level of math in high school successfully completed	Basic Math	62%	57%	42%	-	*	*	-	-	57%
	Pre-Alg	*	*	*	-	-	-	-	-	75%
	Beg Alg	68%	61%	53%	-	*	*	-	-	62%
	Geo	68%	47%	58%	-	61%	*	-	-	58%
	Int Alg	56%	52%	55%	-	67%	53%	50%	0%	58%
	Stats/ Finite	-	50%	86%	-	56%	86%	69%	83%	74%
	Precalc	-	-	67%	-	55%	32%	41%	100%	50%
	Calc	-	-	-	-	75%	86%	33%	85%	74%
Total		65%	56%	56%	-	63%	62%	49%	84%	60%

* fewer than 5 students
 - no students

Red = transitioned down at least one level from high school to community college,
Yellow = stayed at same level in community college as in high school,
Green = transitioned up at least one level from high school to community college.

Statistical Notes

Regression analyses were run on the dataset to predict community college math success from grade in highest high school math course, whether or not a student had a break between high school and community college math attempts, gender, and ethnicity. Separate regressions were run for each level of high school math. Generally, demographic variables were less influential on course success at higher levels of initial community college math course taking. For lower level math courses, ethnicity was related to course success. White and Asian Pre-Algebra students were less likely to be successful (White-Beta= -0.414, $p=0.016$, Asian-Beta= -0.328, $p=0.033$). White and Hispanic Beginning Algebra students were more likely to be successful (White-Beta=0.248, $p=0.038$, Hispanic-Beta=0.318, $p=0.016$).

Table 7. Ranking for High School Math Courses

Level	Course ID	Title
Basic Math	2400	PRE ALG
Basic Math	2402	CAHSEE MATHEMA
Basic Math	2402	CAHSEE-MATH
Basic Math	2402	CAHSEEMATH-EL
Basic Math	2402	MATH CAHSEE
Basic Math	2402	SUCCESS MATH
Basic Math	2420	CHSEE MATH
Basic Math	2420	MATH A
Basic Math	2420	PREP. MATH
Basic Math	2421	MATH B
Basic Math	2430	INT MATH IV
Pre-Algebra	2424	ALT/PREP. MATH
Pre-Algebra	2424	PRE ALG
Pre-Algebra	2424	PRE-ALGEBRA
Beginning Algebra	2403	ALGEBRA 1
Beginning Algebra	2403	ALGEBRA 1 P
Beginning Algebra	2403	ALGEBRA 1.1
Beginning Algebra	2403	ALGEBRA 1.2
Beginning Algebra	2403	ALGEBRA I
Beginning Algebra	2403	ALT/ALGEBRA I
Beginning Algebra	2403	P ALGEBRA 1
Beginning Algebra	2403	PRE ALGEBRA
Beginning Algebra	2403	TRANS MATH
Beginning Algebra	2403	TRANS MATH P
Beginning Algebra	2428	ALGEBRA 1A.1
Beginning Algebra	2428	ALGEBRA 1A.2
Beginning Algebra	2428	ALGEBRA 1A-EL
Beginning Algebra	2429	ALGEBRA 1B.1
Beginning Algebra	2429	ALGEBRA 1B.1-E
Beginning Algebra	2429	ALGEBRA 1B.2
Beginning Algebra	2429	ALGEBRA 1B.2-E
Beginning Algebra	2429	ALGEBRA B
Geometry	2405	BRIDGE TO GEOM
Geometry	2405	GEOMETRY
Geometry	2405	GEOMETRY.1
Geometry	2405	GEOMETRY.2
Geometry	2405	GEOMETRY-ADV
Geometry	2413	BRIDGE TO GEOM
Geometry	2413	GEOMETRY
Geometry	2413	GEOMETRY P
Geometry	2413	GEOMETRY.1
Geometry	2413	GEOMETRY.2
Geometry	2413	P GEOM

Level	Course ID	Title
Intermediate Algebra	2404	ALG 2/TRIG.1
Intermediate Algebra	2404	ALG 2/TRIG.2
Intermediate Algebra	2404	ALG 2/TRIG-H
Intermediate Algebra	2404	ALGEBRA 2
Intermediate Algebra	2404	ALGEBRA 2 P
Intermediate Algebra	2404	ALGEBRA 2.2
Intermediate Algebra	2404	ALGEBRA 2P
Intermediate Algebra	2404	ALGEBRA I
Intermediate Algebra	2404	ALGEBRA II
Intermediate Algebra	2404	APPL ALG IA
Intermediate Algebra	2404	APPL ALG 1B
Intermediate Algebra	2404	P ALG 2
Intermediate Algebra	2427	INT MATH III
Statistics/Finite Math	2410	PROB/STATISTS
Statistics/Finite Math	2483	STATISTICS-AP
Pre-Calculus	2407	TRIG P
Pre-Calculus	2407	TRIGONOMETRY.1
Pre-Calculus	2407	TRIGONOMETRY.2
Pre-Calculus	2408	INT ALG AND TR
Pre-Calculus	2409	TRIG/PRE-CALC
Pre-Calculus	2414	P MATHANLYS
Pre-Calculus	2414	PRE CALCULUS
Pre-Calculus	2414	PRE-CALCULUS
Pre-Calculus	2414	PRECALCULUS-H
Calculus	2415	CALCULUS AP
Calculus	2415	CALCULUS HONOR
Calculus	2415	CALCULUS P
Calculus	2480	CALCULUS-AP

Table 8. Ranking for Community College Math Courses

Level	Course ID	Title
Basic Math	MATH-90	Fundamentals of Arithmetic
Basic Math	MATH-91	Fundamentals of Decimals & Fractions
Pre-Algebra	MATH-80	Prealgebra
Beginning Algebra	MATH-A	Beginning Algebra
Beginning Algebra	MATH-B	APPLIED MATHEMATICS
Intermediate Algebra	MATH-C	Intermediate Algebra
Statistics/Finite Math	MATH-10	Elementary Statistics
Statistics/Finite Math	MATH-15	Finite Mathematics
Statistics/Finite Math	MATH-20A	Basic Structure of Math I
Statistics/Finite Math	MATH-20B	Basic Structure of Math II
Statistics/Finite Math	MATH-21	Introduction to Mathematical Reasoning
Pre Calculus	MATH-02	College Algebra & Trigonometry
Pre Calculus	MATH-25	Trigonometry
Pre Calculus	MATH-26	College Algebra
Calculus	MATH-04A	Analytical Geometry & Calculus
Calculus	MATH-04B	Analytical Geometry & Calculus
Calculus	MATH-05A	APPLIED CALCULUS
Linear Algebra	MATH-06	Elementary Differential Equations