



Course Success and Math-102 and Math-103 Sequencing

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Summary of Findings

Students whose sequence begins with MATH-102 are substantially and statistically significantly more likely to successfully complete both MATH-102 and MATH-103.

Implications

- Students, in general, should be advised to sequence MATH-102 prior to MATH-103.
- Students who plan to enroll in MATH-103 prior to MATH-102 should be advised to seek out available instructional support services (e.g. tutoring) during the course.

Overview

A counselor contacted the Office of Institutional Effectiveness, Research & Planning (OIERP) to research whether the sequence in which a student took MATH-102 and MATH-103 impacted the student's successful completion of either or both courses.

Methodology

Students earning a grade on record in both MATH-102 and MATH-103 between academic years 2008-2009 and 2012-2013 were selected. Records were then identified and coded depending if the student attempted either MATH-102 or MATH-103 first. Of the cases identified, 364 students attempted MATH-102 first, and 52 students attempted MATH-103 first. Given the limited number of students attempting MATH-103 prior to MATH-102, no further controls such as instructor, term, or prior academic performance were applied to the data.

Without controlling for typically impactful variables such as instructor, term, or prior academic performance, there is a limitation in determining the causality of the data. Caution is highly encouraged in assigning a reason for students having a higher success rate in these courses. Counselors should use their professional judgment when advising each student on the appropriate sequencing of MATH-102 and MATH-103.

The effect size statistic was used to indicate the size of the difference on course success. Effect size is calculated by dividing the difference of the two means by the pooled standard deviation. Additionally, whereas the number of students in each group does not influence the effect size, the number of students in each group does influence the statistical significance. Jacob Cohen developed one method of interpreting effect size in which an effect size of at least .20 can be considered as having a substantial effect.

Findings

Table 1 illustrates the success rate for students in MATH-102 and MATH-103 depending on which course the student attempted first. Students attempting MATH-102 first were substantially (ES=0.57) and statistically significantly ($p < 0.001$) more likely to successfully complete MATH-102 (83%) than students who attempted MATH-103 first (59%). Students attempting MATH-102 first were substantially (ES=0.63) and statistically significantly ($p < 0.001$) more likely to successfully complete MATH-103 (65%) than students who attempted MATH-103 first (34%).

Table 1. Success rates by course and course first attempted.

Course	Students who successfully completed their course						Effect Size (ES)	p-value
	Students who took MATH-102 first			Students who took MATH-103 first				
	#	N	%	#	N	%		
MATH-102	334	405	82.5	38	64	59.4	0.57	<0.001
MATH-103	273	419	65.2	23	67	34.3	0.63	<0.001

Note: The number of students earning a grade of A, B, or C in the course (#) are divided by the total number of students earning a grade on record of A, B, C, D, F, P/NP, CR/NC, W or I in the course (N) to calculate the percent of successful students (%).