

Palomar College
Office of Institutional Research and Planning
Research In Brief
<http://www.palomar.edu/irp/>

Pre-AA Math Tracking Study

Introduction: The current study was done as part of a Spring 2007 research initiative focused on students who enter into Palomar’s Math, Reading, ESL or English credit course curriculum at the Pre-AA Level. The information objectives of the research included describing such students in terms of their:

- Demographics;
- Course Flow (progress);
- Term-to-term persistence.

Caveat: All information that will be shared herein is “descriptive” in nature. There is no intention here to draw conclusions regarding cause and effect.

Methodology: The research was executed in the form of a *cohort* tracking study. A *cohort* is a group of students who share common characteristics. In this case, cohorts were formed based on two characteristics:

- Level of students’ first Math course;
 - Pre-AA (Catalog#’s 1-49)
 - AA Degree Applicable (50-99)
 - Transfer Level (100 and above)
- Term that first course was attempted.

For the purpose of forming the cohorts, only transcript grade enrollments were considered (i.e. grades of A, B, C, CR, D, F, FW, NC, W). Grade files were searched back through Summer’88 to find the first term in which a given student enrolled in a Math course. The level of that course was then classified as Pre-AA, AA or Transfer level based on its catalog number. In cases where students enrolled in more than one

course during their first Math enrollment term, the lowest catalog number was used for classification purposes. Students whose first Math course was taken prior to Summer’95 were eliminated from the study to optimize correct identification of “first” Math enrollments at Palomar. Sacrificing the Summer’88 through Spring’95 data ensured that the identified course was the first Math course taken in at least seven years.

For the 24 terms beginning Summer’95 and ending Spring’03, a total of 13,463 students were identified whose first Math enrollment was at Pre-AA Level and was taken during the respective term (see Table 1). The course taking behaviors and course outcomes for each of those students were then tracked for four years (12 terms). Thus, the most recent cohort that could be tracked was Summer’03 since their twelfth term fell in Fall’06 -- which was the last term for which grades were available for analysis. All 24 terms of Math Pre-AA entry cohorts were collapsed together for the purposes of the analyses that follow.

Table 1
Pre-AA Math Cohort Sizes

	Summer	Fall	Spring	Total
2002-03	280	950	668	1,898
2001-02	245	967	694	1,906
2000-01	237	942	639	1,818
1999-00	217	969	585	1,771
1998-99	223	925	598	1,746
1997-98	202	804	559	1,565
1996-97	180	757	553	1,490
1995-96	176	593	500	1,269
Total:	1,760	6,907	4,796	13,463

Demographics: In order to put demographics of the Math Pre-AA students in perspective, Table 2 contrasts them against the demographics of students who entered the Math curriculum at AA Level or higher. The methodology used to form the latter cohorts paralleled that described on the first page.

Table 2
Demographics of Math Pre-AA Entry Cohorts
Versus Cohorts that Entered at AA Level or Higher

	Pre-AA Level	AA Level	Transfer Level
# in Cohort	13,463	19,276	8,381
Gender			
Female	57%	51%	45%
Male	43%	49%	55%
Ethnicity			
Asian/PI	4%	7%	12%
Black	7%	3%	2%
Filipino	3%	4%	5%
Hispanic	29%	17%	11%
Nat.Am.	2%	1%	1%
White	49%	61%	61%
Unknown	6%	7%	8%
Age			
17 & Under	10%	10%	10%
18-20	47%	56%	55%
21-24	15%	15%	16%
25-29	9%	8%	8%
30-34	6%	4%	4%
35 & Over	13%	8%	6%
Full-Time First Semester			
Yes	37%	53%	56%
No	63%	47%	44%
Citizenship			
Yes	90%	91%	90%
No	10%	9%	10%
Had Financial Aid First Year			
Yes	22%	16%	13%
No	78%	84%	87%
EOPS First Semester			
Yes	8%	4%	2%
No	92%	96%	98%

- **Gender:** Pre-AA Math students are disproportionately more female than male (57%/43%); but the opposite is true for Transfer Level Math students (45%/55%)
- **Ethnicity:** Pre-AA cohorts are diverse and include a full 29% who are Hispanic
- **Age:** Pre-AA students are less likely to be in the 18-20 age group (47%) than are

their AA Level (56%) and Transfer Level (55%) counterparts, however those 35 & over are well represented at 13% versus only 8% for AA and 6% for Transfer Levels

- **Full-Time/Part-Time Status:** Almost two thirds (63%) of students who entered Math at Pre-AA Level were part-time in their first semester
- **Financial Aid/EOPS Status:** Over a fifth (22%) of Pre-AA Math students had financial aid during their first academic year and almost one in ten (8%) was in EOPS their first Math term

Performance in Pre-AA Math: The key performance measures summarized in Table 3 include:

- **Number of enrollments;**
- **Success rate** (count of A,B,C,CR grades divided by total A,B,C,CR,D,F,FW,NC, W grades);
- **Retention rate** (count of non-W grades divided by total grades);
- **Success units** (earned with grades of A,B,C, or CR);
- **Number of terms until first success** grade.

Table 3
Performance in Pre-AA Math
Within 4 Years (12 Terms) of Cohort Entry

	Number of		
	Cohort Members =	Passed	Never
	13,463	A,B,C,CR	Passed
MATH			
#Students		8,956	4,507
%Students		67%	33%
Avg Enrolls		1.28	1.27
Success Rate		84%	
Retention Rate		97%	75%
Avg Success Units		3.15	
Avg Terms to 1st Success		1.38	

- Two thirds (67%) of Math Pre-AA students passed one or more Pre-AA Math courses during the 4 years they were tracked.
- However, the remaining third (33%) never passed Pre-AA Math during that 4-year period of time.

- Both those who passed and those who never passed averaged about 1.3 Pre-AA Math enrollments.
- Those who passed exhibited an 84% success rate in the Pre-AA Math courses they took.
- Retention in Pre-AA Math was considerably higher among those who passed (97% versus 75%).
- Those who passed earned an average of 3.15 success units in Pre-AA Math.
- On average, those who passed took slightly over one term (1.38) to achieve their first success in Pre-AA Math.

- On Average, it took those students 3.54 terms (slightly over a year) to pass their first AA Level Math course.
- One in fourteen (7%) passed a Transfer Level Math course.
- On Average, it took those students 7.01 terms (slightly over two years plus one term) to pass their first Transfer Level Math course.

Term-to-Term Persistence: Figure 1 displays the persistence rates of all Fall Math Pre-AA cohorts from one primary term to the next.

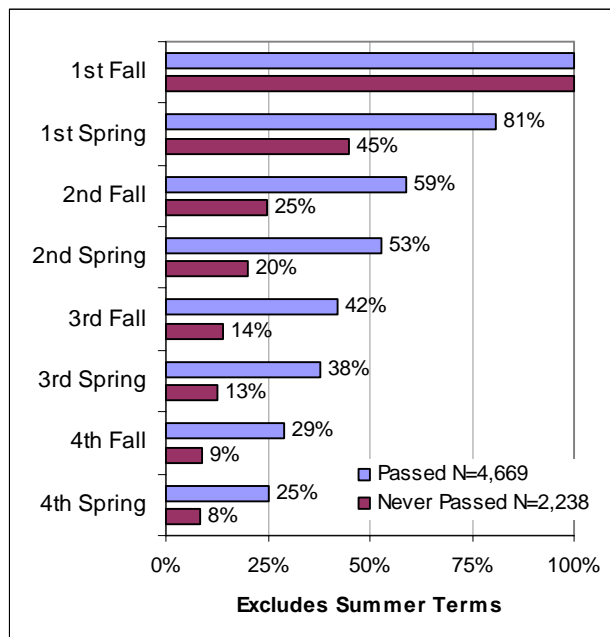
Flow Through the Math Course Sequence: Table 4 shows the extent to which the Math Pre-AA students progressed through higher levels of the Math course sequence.

Table 4
Performance in Higher Level Math Sequence
Within 4 Years (12 Terms) of Cohort Entry

Number of Cohort Members = 13,463	Passed A,B,C,CR			Never Didn't Passed Take
	AA Level (50-99)			
MATH	AA Level (50-99)			
#Students	4,421	1,919	7,123	
%Students	33%	14%	53%	
Avg Enrolls	2.28	1.51		
Success Rate	66%			
Retention Rate	92%	73%		
Avg Success Units	5.93			
Avg Terms to 1st Success	3.54			
MATH	Transfer Level (100+)			
#Students	927	328	12,208	
%Students	7%	2%	91%	
Avg Enrolls	1.92	1.47		
Success Rate	74%			
Retention Rate	93%	69%		
Avg Success Units	4.96			
Avg Terms to 1st Success	7.01			

- One third (33%) passed an AA Level Math course.

Figure 1
Math Pre-AA Students
Term-to-Term Persistence
(Fall Cohorts Only)



- Students who passed a Pre-AA Math course exhibited considerably more persistence than their counterparts who never passed such a course.
- By the fourth Spring since their initial entry, 25% of students who passed were still enrolling in Palomar courses versus only a third as many (8%) of those who never passed.

Table 5

4-Year (12 Term) Progress of Math Pre-AA Entry Cohorts in Other Subjects

Number of Cohort Members = 13,463	Pre-AA Level (1-49)			AA Level (50-99)			Transfer Level (100+)		
	Passed A,B,C,CR	Never Passed	Didn't Take	Passed A,B,C,CR	Never Passed	Didn't Take	Passed A,B,C,CR	Never Passed	Didn't Take
ENG									
#Students	2,634	1,640	9,189	2,793	1,030	9,640	2,696	665	10,102
%Students	20%	12%	68%	21%	8%	72%	20%	5%	75%
Avg Enrolls	1.21	1.25		1.20	1.30		1.53	1.28	
Success Rate	83%			84%			87%		
Retention Rate	97%	77%		97%	77%		96%	72%	
Avg Success Units	4.01			3.98			5.16		
Avg Terms to 1st Success	2.48			3.59			5.03		
READ									
#Students	504	229	12,730	794	244	12,425	504	207	12,752
%Students	4%	2%	95%	6%	2%	92%	4%	2%	95%
Avg Enrolls	1.64	1.16		1.07	1.11		1.08	1.04	
Success Rate	89%			97%			97%		
Retention Rate	98%	87%		99%	79%		100%	72%	
Avg Success Units	2.39			4.12			3.60		
Avg Terms to 1st Success	2.60			2.24			3.48		
ESL									
#Students	206	33	13,224	61	13	13,389	332	55	13,076
%Students	2%	0%	98%	0%	0%	99%	2%	0%	97%
Avg Enrolls	2.31	1.21		1.59	1.15		2.43	1.24	
Success Rate	87%			94%			86%		
Retention Rate	97%	68%		99%	60%		99%	81%	
Avg Success Units	5.02			3.48			10.05		
Avg Terms to 1st Success	2.10			2.90			2.39		
Other Subjects									
#Students	576	103	12,784	1,519	440	11,504	9,379	1,896	2,188
%Students	4%	1%	95%	11%	3%	85%	70%	14%	16%
Avg Enrolls	1.99	1.06		1.74	1.23		9.57	2.33	
Success Rate	90%			88%			72%		
Retention Rate	96%	67%		97%	83%		93%	74%	
Avg Success Units	3.44			2.46			19.49		
Avg Terms to 1st Success	3.88			3.27			1.94		

Performance in Other Disciplines: Table 5 shows performance of the Math Pre-AA students in other coursework they took during the 4-year tracking period. English, Reading and ESL are shown separately, while all other non-Math disciplines are rolled together into the “Other Subjects” category.

- Generally, Math Pre-AA students did not enroll in Reading or ESL courses -- the percent who *Didn't Take* ranged from 92% to 99%.
- Between one fourth (25%) and one third (32%) enrolled in one or more levels of English and, overall, one in five (20%) passed at each level.

- Most (84% i.e. 100% minus the 16% who *Didn't Take*) enrolled in “Other” Transfer Level courses.
- Those who were successful in Other Transfer Level courses earned, on average, 19.5 units.

Overall 4-Year Progress: As was reported earlier (Table 3), not all Math Pre-AA students actually passed a Pre-AA Math course – 67% did and 33% did not. Moreover, in Figure 1 it was noted that those two types of students differed substantially in terms of their term-to-term persistence – those who passed a Pre-AA Math course were much more likely to persist. Thus, it would be of interest to quantify the “overall” progress that those two types of students made

over the course of the 4-year (12 term) tracking period. Table 6 attempts to accomplish that objective by using average success units earned as the metric.

Table 6
Units* Earned During 4-Year Study Period
By Cohort Members Who...
Passed Versus Didn't Pass Pre-AA Math

	Passed A,B,C,CR	Never Passed	Total
#Students:	8,956	4,507	13,463
Basic Skills Units	4.54	0.52	3.19
AA Level Units	4.68	0.60	3.31
Transfer Level Units	20.37	5.32	15.33
Total:	29.58	6.43	21.83

* Average success units across all disciplines

- On average, those who *passed* Pre-AA Math earned almost five times as many

units as those who *never passed* (29.58 versus 6.43).

- More importantly, those who passed earned over four times as many AA & Transfer Level units (25.05 versus 5.92).

Closing Remarks: The caveat prominently displayed on page #1 clearly states that “There is no intention here to draw conclusions regarding cause and effect”. It is indeed tempting, though. Wouldn't you agree?

More information? Please contact the Office of Institutional Research and Planning if you have any questions about this or other research and planning issues (Ext. 2360)