

IUPUI Online Math Academy 2014: An Examination of Academic Success Outcomes

Prepared by

Michele J. Hansen, Ph.D.

Office of Student Data, Analysis, and Evaluation (OSDAE)



Report Notes and Results Highlights

Purpose of the Investigation

- The purpose of this investigation was to 1) determine the characteristics of students participating in the 2014 Online Math Academy (OMA) 2) enhance understanding of how the new OMA program influenced conditionally admitted students' academic performance levels and retention rates 3) investigate if the time spent in the ALEKS modules made a difference in student performance in math courses and 4) examine the effects of the OMA program compared to previous Student Success Academy interventions.

The Online Math Academy Program

- The Online Mathematics Academy (OMA) was implemented at IUPUI in the summer of 2014. The program allowed students to work through ALEKS (Assessment and LEarning in Knowledge Spaces) online math modules with the personalized support of virtual mentoring sessions. Students were required to check in with their mentor twice weekly for tutoring and peer-to-peer support. Students were also offered to take the math placement test up to five times with the idea that students would be able to improve their scores and expedite their placement into credit bearing math courses. Prior to the OMA program, conditionally admitted students participated in a 5-6 week Summer Success Academy (SSA) program that required students to be on-campus each day beginning in early July. The OMA program was implemented as a more cost-effective method to allow students the opportunity to improve their math skills at their own pace.

Results Highlights

- A total of 78 students participated in the OMA program and 68 (87%) took the ALEKS placement test 5 times. Additionally, 90% of the OMA students subsequently participated in the two-week Summer Bridge offered in August prior to the start of fall courses. The Summer Bridge program helps first year students successfully transition to college by enhancing their levels of academic and social integration. OMA students enrolled in an average of 14.77 credit hours during their fall semester and 24% lived in campus housing. Please see Table 1 to view characteristics of OMA students.
- OMA participants had an average fall-to-spring retention rate of 87% and an average fall semester GPA of 2.36. The overall DFW rate in their fall math courses was 55%. It is noteworthy that 16 students did not enroll in a math course during the fall semester and 10 students dropped their math course prior to a grade being recorded. A total of 52 students actually received a grade in a fall math course. Please review Tables 2, 3, and 4.
- Almost half (46%) of the OMA participants completed less than 2 hours of modules and 8 students failed to complete any. Results suggest that students who engaged in 2 to 6 hours of modules had better grades in their math courses compared to students that engaged in 0 or less than 2 hours of modules. Additionally, participating in more than 6 hours seemed to have diminishing returns. The most important implication for future programming is that students should be required to complete at least 6 hours of modules. Please see Table 5.
- OMA conditionally admitted students had similar average HS GPAs and SAT scores compared to students that participated in the more intensive, in-person, and costly 2013 Summer Success Academy students yet still attained similar outcomes (GPAs and retention rates). This finding suggests that the more cost effective OMA may be preferred over the previous program design.

Table 1. 2014 Online Math Academy Student Characteristics Total N=78

Student Attribute	% or Mean	Standard Deviation
Fall Course Load	14.77	1.64
African American Student	10%	0.31
Latino Student	9%	0.29
Female Student	50%	0.50
Age at census of first fall semester	18.69	0.43
Pell received first fall semester	35%	0.48
First Generation	29%	0.46
Average SAT Score	987.31	97.68
Average High School GPA	2.71	0.09
Twenty-First Century Scholar - Received State Money	18%	0.39
Attended Summer Bridge	90%	0.31
Lived On Campus First Fall Semester	24%	0.43
Unmet Financial Need Fall	\$4,421.92	4318.26

Table 2. 2014 Online Math Academy Program Characteristics Total N=78

Program Attribute	% or Mean	Standard Deviation
Total Time Spent on ALEKS Modules	4.04 Hours (range 0-27.75)	5.03
Total Number of Placement Tests Taken	4.76 (range 0-5)	.72

Table 3. 2014 Online Math Academy Academic Success Outcomes Total N=78

Academic Success Measure	% or Mean	Standard Deviation
Retained First Spring Any IU Campus	87%	0.34
Retained First Spring at IUPUI	87%	0.34
Semester GPA, First Fall	2.36	0.94
Semester GPA<2.00, First Fall	32%	0.47
Academically Dismissed First Fall Semester	9%	0.29
Math Grade	1.46	1.32
Average Math Grade Below 2.00	35%	0.48
Math DFW Rate first fall semester	55%	0.50

Figure 1. Number of Students Enrolled in Fall Math Courses

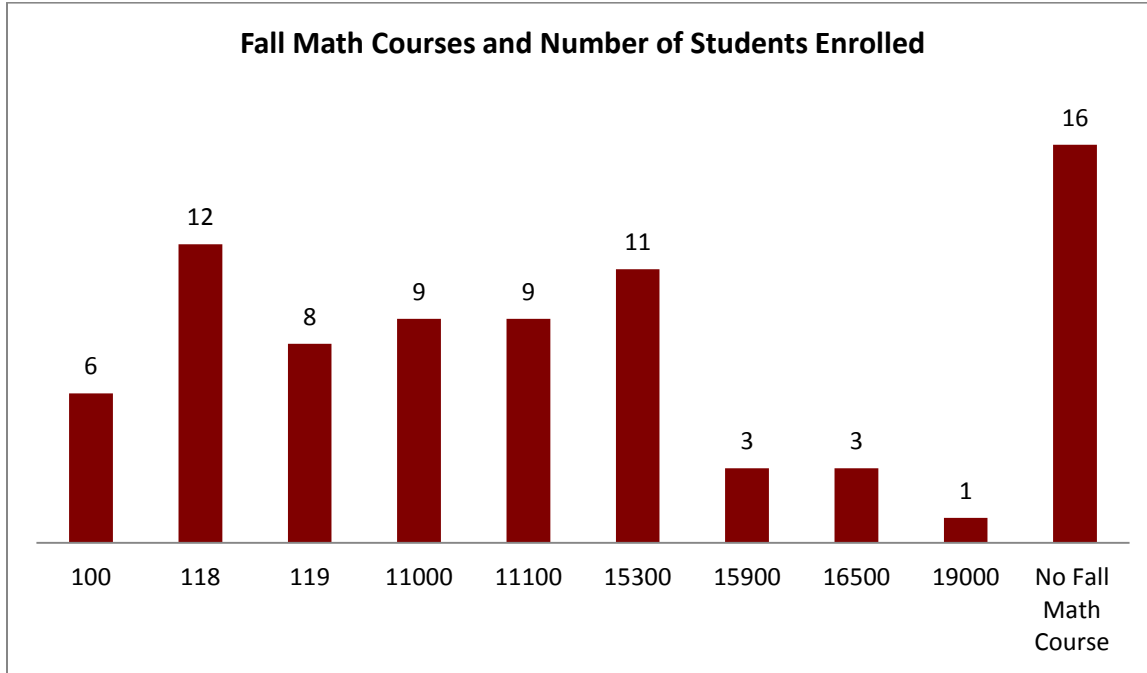


Table 4. Fall Math Courses, Average Grades, and DFW Rates

Math Course	N	Average Grade	N	DFW Rate
100	5	1.54	6	50%
118	11	2.09	12	33%
119	7	1.49	8	63%
110	8	.84	9	67%
111	6	.93	9	78%
153	10	1.29	11	55%
159	3	2.67	3	0%
165	1	.00	3	100%
190	1	1.70	1	0%
	52	1.46	62	55%

Note: 16 students did not enroll in a math course during the fall semester and 10 students dropped their math course prior to a grade being recorded. A total of 52 students actually received a grade in a fall math course.

**Table 5. 2014 Online Math Academy Time Spent on Modules and Academic Success Outcomes
Total N=78**

Time Spent on ALEKS Modules Hours	N	Fall GPA	Fall GPA < 2.00	Math GPA	Math GPA < 2.00	Fall-Spring Retn IUPUI IN
0	8	1.98	63%	.46	63%	75%
>0-2.00	28	2.23	43%	1.23	39%	89%
>2.00 – 6.00	24	2.65	17%	2.03	21%	92%
Greater than 6.00	18	2.36	22%	1.48	33%	83%
Total	78	2.36	32%	1.46	35%	87%

Table 6. Online Math Academy Conditional Admits Compared to Summer Success Academy, All 2006 First-Time, Full-Time Conditional Admits and a Matched Comparison Group

	N	Avg. H.S. GPA	Avg. SAT Score	Avg. Fall GPA	% Fall GPA below a 2.00	Fall Math GPA	Fall Math Grade below 2.00	Fall – Spring Retention Rate	Fall- to-Fall Retention Rate	One-Year Success Rate % Cum. GPA 2.00 or above
2006 Conditional Admits	700	2.72	889	2.04	43%	1.67	47%	82%	52%	59%
2006 Matched Comparison	206	2.79	880	2.06	41%	1.73	42%	83%	56%	60%
2009 SSA	169	2.69	901	2.35	28%	2.07	33%	89%	70%	62%
2010 SSA	179	2.71	881	2.18	36%	2.03	38%	82%	58%	55%
2011 SSA	222	2.65	906	2.14	39%	2.00	39%	84%	61%	54%
2012 SSA	94	2.73	930	2.32	28%	2.04	37%	82%	61%	61%
2013 SSA	92	2.71	989	2.27	31%	2.06	34%	84%	61%	66%
2014 OMA	78	2.71	987	2.36	32%	1.46	35%	87%	N/A	N/A

Note: Bolded items are significantly different compared to the 2006 matched groups based on independent samples t-test or chi-square test results and practical significance.

Figure 2. One-Year Retention Rates for First-Time, Full-Time Conditionally Admitted Students

