

Achieving the Dream Report Series



March 28, 2012

College Math Tutoring Results Fall 2011

This report focuses on the overall use, growth and final outcomes for students who used the college level math tutoring services as compared with those who did not for the period of Fall 2010 to Fall 2011. The Spring data is presented for reference only. It is important to note that the Math Center serves students in both developmental and college level courses.

As can be seen in Table 1, the growth in the use of the college level tutoring services between Fall 2010 and Fall 2011 has been significant. The number of unduplicated students using the services increased from 249 to 276, or 10.8%. There were 2,364 individual appointments, an increase of 84%. The overall contact hours increased from 2,060 to 5,929 or 188%.

Table 1. College Level * Math Tutoring Fall 2010 compared with Fall 2011

		Tutoring Activity				% Change
		Spring '10	Fall '10	Spring '11**	Fall '11***	Fall '10 - Fall '11
# of Contacts	N	241	249	208	276	10.8%
	Mean	5.5	5.2	7.7	8.6	64.8%
	Median	3.0	3.0	4.5	3.0	0.0%
	Mode	1.0	1.0	1.0	1.0	0.0%
	Sum	1,317.0	1,285.0	1,591.0	2,364.0	84.0%
Contact Minutes	N	241	249	207	276	10.8%
	Mean	554.7	496.4	842.0	1288.9	159.6%
	Median	256.0	214.0	733.4	600.8	180.7%
	Mode	91.0	32.0	60.0	60.0	87.5%
	Sum	133,673.0	123,590.0	151,807.0	355,735.9	187.8%
Contact Hours	N	241	249	207	276	10.8%
	Mean	9.0	8.3	12.2	21.5	158.8%
	Median	4.1	3.6	7.4	10.0	178.1%
	Mode	1.3	0.5	1.0	1.0	100.0%
	Sum	2,228.3	2,059.8	2,530.1	5,928.9	187.8%

*For the purposes of this report only students taking one or more of the following courses and using the college level math tutoring services were included in the "Tutoring" cohort. College level math courses include MAT111, MAT112, MAT115, MAT118, MAT119, MAT120, MAT121, MAT125, MAT130, MAT140, MAT171, MAT252, MAT253 AND MAT254.

**In Spring of 2011, 4 tutoring records were omitted due to unreliable data. This term also marked the implementation of the math center's new time tracking software, TutorTrac.

***In Fall of 2011, 5 tutoring records were omitted because the contact lasted less than 10 minutes. Also in Fall of 2011, contact hours increased by 187.7%. This may be partially due to the Math Center's new hours of operation, 8am to 8pm (12 hours of operation) compared to 8am to 3pm (7 hours of operation). This represents an increase of 71%. Outlier contact hours of between 5 – 12 hours exist due to the habit of students who come and go between classes, use the center to study, or do not log out until the tracking software is shut down at the end of the day. There were 505 contacts of this type for 5 or more hours.

Table 2 shows that for Fall 2010 and Fall 2011 more male students overall took college level courses than did female students but the percentage of male students has declined between Fall 2010 and Fall 2011 from 55.3% to 53.7%. More male students used the tutoring services than female students but by a slightly smaller margin (50.9% to 49.1%) than actual course takers. The increase in use for unduplicated students favored female students (up 20/16.9%).

Table 2. College Level Math Tutoring by Gender

Gender	No Tutoring				Tutoring				Total			
	Fall '10		Fall '11		Fall '10		Fall '11		Fall '10		Fall '11	
	N	%	N	%	N	%	N	%	N	%	N	%
Female	350	43.9%	331	45.2%	118	47.4%	138	49.1%	468	44.7%	469	46.3%
Male	448	56.1%	402	54.8%	131	52.6%	143	50.9%	579	55.3%	545	53.7%
Total	798	100.0%	733	100.0%	249	100.0%	281	100.0%	1,047	100.0%	1,014	100.0%

Table 3 shows that the usage of the college level math tutoring services is spread fairly evenly across racial groups. The most notable change from Fall 2010 to Fall 2011 was the increase in use by White/Caucasian students from 59.0% to 63.0% but that could be explained by the decrease in Unknowns.

Table 3. College Level Math Tutoring by Race/Ethnicity

Race/Ethnicity	No Tutoring				Tutoring				Total			
	Fall '10		Fall '11		Fall '10		Fall '11		Fall '10		Fall '11	
	N	%	N	%	N	%	N	%	N	%	N	%
African-American/Black	16	2.0%	16	2.2%	12	4.8%	9	3.2%	28	2.7%	25	2.5%
American Indian/American Native	2	0.3%	1	0.1%	2	0.8%	2	0.7%	4	0.4%	3	0.3%
Asian	14	1.8%	12	1.6%	2	0.8%	5	1.8%	16	1.5%	17	1.7%
Hispanic	157	19.7%	151	20.6%	66	26.5%	75	26.7%	223	21.3%	226	22.3%
Multi-Racial	7	0.9%	7	1.0%	2	0.8%	8	2.8%	9	0.9%	15	1.5%
Native Hawaiian/Pacific Islander	8	1.0%	5	0.7%	3	1.2%	0	0.0%	11	1.1%	5	0.5%
Non-Resident Alien	2	0.3%	7	1.0%	5	2.0%	3	1.1%	7	0.7%	10	1.0%
Unknown	24	3.0%	9	1.2%	10	4.0%	2	0.7%	34	3.2%	11	1.1%
White/Caucasian	568	71.2%	525	71.6%	147	59.0%	177	63.0%	715	68.3%	702	69.2%
Total	798	100.0%	733	100.0%	249	100.0%	281	100.0%	1,047	100.0%	1,014	100.0%

Table 4 shows that the college level math tutoring services are used primarily by continuing students. This makes sense because 80% of our new students are assessed into developmental level courses and must complete these courses prior to being allowed to register for college level courses.

Table 4. College Level Math Tutoring by Status

	No Tutoring				Tutoring				Total			
	Fall '10		Fall '11		Fall '10		Fall '11		Fall '10		Fall '11	
	N	%	N	%	N	%	N	%	N	%	N	%
Continuing	491	61.5%	487	66.4%	203	81.5%	205	73.0%	694	66.3%	692	68.2%
New	177	22.2%	113	15.4%	19	7.6%	25	8.9%	196	18.7%	138	13.6%
Readmit	92	11.5%	104	14.2%	22	8.8%	39	13.9%	114	10.9%	143	14.1%
Transfer	35	4.4%	23	3.1%	4	1.6%	10	3.6%	39	3.7%	33	3.3%
Unknown	3	0.4%	6	0.8%	1	0.4%	2	0.7%	4	0.4%	8	0.8%
Total	798	100.0%	733	100.0%	249	100.0%	281	100.0%	1,047	100.0%	1,014	100.0%

It appears that there is no appreciable difference between students who received tutoring in the categories shown in Tables 5 & 6.

Table 5. College Level Math Tutoring by Age

Age in Years	No Tutoring		Tutoring		Total	
	Fall '10	Fall '11	Fall '10	Fall '11	Fall '10	Fall '11
N	798	733	249	281	1,047	1,014
Mean	23.7	24.2	26.4	24.9	24.4	24.4
Median	21.0	22.0	21.8	22.0	21.3	22.0
Mode	19.4	20.0	19.5	20.0	19.5	20.0

Table 6. College Level Math Tutoring by Credits Enrolled

Credits Enrolled	No Tutoring		Tutoring		Total	
	Fall '10	Fall '11	Fall '10	Fall '11	Fall '10	Fall '11
N*	795	727	248	279	1,043*	1,006**
Mean	11.3	11.0	11.1	11.6	11.3	11.2
Median	12.0	12.0	12.0	12.0	12.0	12.0
Mode	13.0	13.0	12.0	12.0	12.0	13.0

*4 students in Fall 2010 did not have credit enrollment data.

**11 students in Fall 2011 did not have credit enrollment data.

Table 7 shows that students who sought tutoring earned more credits on average than students who did not seek tutoring in both Fall 2010 and Fall 2011.

Table 7. College Level Math Tutoring by Earned Credits

Credits Earned	No Tutoring		Tutoring		Total	
	Fall '10	Fall '11	Fall '10	Fall '11	Fall '10	Fall '11
N*	608	581	232	243	840*	824**
Mean	33.0	32.2	38.0	41.2	34.4	37.3
Median	28.0	29.0	31.0	38.0	30.0	33.0
Mode	25.0	12.0	22.0	24.0	12.0	12.0

*207 students from Fall 2010 do not have earned credits data.

**182 students from Fall 2011 do not have earned credits data.

Tables 8a and 8b show that students who sought tutoring had a somewhat higher end of term GPA on average than students who did not seek tutoring in both Fall 2010 and Fall 2011.

Table 8a. College Level Math Tutoring by end of term GPA

	No Tutoring		Tutoring		Total	
	Fall '10	Fall '11	Fall '10	Fall '11	Fall '10	Fall '11
N	798	733	249	281	1047	1014
Mean	2.6	2.4	2.8	2.8	2.6	2.5
Median	2.9	2.8	3.0	3.0	2.9	2.9
Mode	0.0	0.0	1.0	4.0	0.0	0.0

Table 8b. College Level Math Tutoring by end of term GPA for ATD Cohorts

	No Tutoring				Tutoring				
	<=25	Males	Hispanic	Hispanic Males	<=25	Males	Hispanic	Hispanic Males	
N	567	402	151	73	N	205	143	75	37
Mean	2.3	2.3	2.3	2.3	Mean	2.7	2.7	2.5	2.5
Median	2.7	2.7	2.7	2.9	Median	2.9	3.0	2.7	2.6
Mode	0.0	0.0	0.0	0.0	Mode	4.0	4.0	3.0	3.0

The following table shows that students who received tutoring had higher college level math course completion rates (CCRs) with grades A - C (C- is excluded) than those who did not. For Fall 2011 students that received tutoring had a CCR of 71.2% compared to those that did not - 59.4%. This is a difference of 11.8%. Those that did not receive tutoring had stable CCRs for both Fall 2010 (58.2%) and 2011 (59.4%), while students that received tutoring experienced a good increase in CCR from Fall 2010 (66.4%) to Fall 2011 (71.2%).

Table 9a. College Level Math Tutoring by Final Grade

Final Grade	No Tutoring				Tutoring				Total			
	Fall '10		Fall '11		Fall '10		Fall '11		Fall '10		Fall '11	
	N	%	N	%	N	%	N	%	N	%	N	%
A	159	19.7%	152	20.4%	60	23.4%	65	22.8%	219	20.6%	217	21.1%
A-	67	8.3%	58	7.8%	37	14.5%	31	10.9%	104	9.8%	89	8.6%
B+	49	6.1%	66	8.9%	10	3.9%	24	8.4%	59	5.5%	90	8.7%
B	78	9.7%	57	7.7%	24	9.4%	24	8.4%	102	9.6%	81	7.9%
B-	39	4.8%	35	4.7%	12	4.7%	14	4.9%	51	4.8%	49	4.8%
C+	29	3.6%	35	4.7%	10	3.9%	18	6.3%	39	3.7%	53	5.2%
C	49	6.1%	39	5.2%	17	6.6%	27	9.5%	66	6.2%	66	6.4%
C-	27	3.3%	19	2.6%	8	3.1%	17	6.0%	35	3.3%	36	3.5%
D+	24	3.0%	12	1.6%	6	2.3%	6	2.1%	30	2.8%	18	1.7%
D	25	3.1%	29	3.9%	11	4.3%	8	2.8%	36	3.4%	37	3.6%
F	53	6.6%	88	11.8%	19	7.4%	29	10.2%	72	6.8%	117	11.4%
I	23	2.8%	30	4.0%	11	4.3%	7	2.5%	34	3.2%	37	3.6%
NW	83	10.3%	55	7.4%	11	4.3%	2	0.7%	94	8.8%	57	5.5%
W	103	12.7%	69	9.3%	20	7.8%	13	4.6%	123	11.6%	82	8.0%
Total	808	100.0%	744	100.0%	256	100.0%	285	100.0%	1,064	100.0%	1,029	100.0%
A - C Completion	470	58.2%	442	59.4%	170	66.4%	203	71.2%	640	60.2%	645	62.7%
A - D Completion	546	67.6%	502	67.5%	195	76.2%	234	82.1%	741	69.6%	736	71.5%

A total of 1,064 college math grades were distributed among 1,047 individual students during Fall 2010.
 A total of 1,029 college math grades were distributed among 1,014 individual students during Fall 2011.

The final table (9b) disaggregates the CCR data for Fall 2011. The largest difference in CCR between the two cohorts occurred with males. Males that received tutoring completed with an A-C CCR of 71.2% while their counterparts had a CCR of 55.3% (a 15.9% difference). The next largest gain was for students' age 25 or less. Hispanics increased by 2.3% while Hispanic males increased by 4.5%.

Table 9b. College Level Math Tutoring by Final Grade

Final Grade	No Tutoring								Tutoring							
	Age <=25		Hispanic		Males		Hispanic Males		Age <=25		Hispanic		Males		Hispanic Males	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
A	96	16.9%	23	15.0%	68	16.7%	8	10.7%	40	19.5%	11	14.5%	65	22.8%	5	13.2%
A-	42	7.4%	10	6.5%	27	6.6%	3	4.0%	20	9.8%	5	6.6%	31	10.9%	4	10.5%
B+	49	8.6%	18	11.8%	38	9.3%	11	14.7%	16	7.8%	5	6.6%	24	8.4%	1	2.6%
B	48	8.5%	13	8.5%	32	7.9%	8	10.7%	21	10.2%	10	13.2%	24	8.4%	5	13.2%
B-	31	5.5%	8	5.2%	16	3.9%	1	1.3%	12	5.9%	3	3.9%	14	4.9%	1	2.6%
C+	30	5.3%	8	5.2%	22	5.4%	5	6.7%	15	7.3%	3	3.9%	18	6.3%	2	5.3%
C	33	5.8%	9	5.9%	22	5.4%	6	8.0%	22	10.7%	9	11.8%	27	9.5%	5	13.2%
C-	18	3.2%	5	3.3%	11	2.7%	1	1.3%	14	6.8%	6	7.9%	17	6.0%	2	5.3%
D+	10	1.8%	3	2.0%	5	1.2%	2	2.7%	4	2.0%	2	2.6%	6	2.1%	1	2.6%
D	23	4.1%	11	7.2%	17	4.2%	6	8.0%	7	3.4%	0	0.0%	8	2.8%	0	0.0%
F	70	12.3%	14	9.2%	54	13.3%	9	12.0%	22	10.7%	13	17.1%	29	10.2%	8	21.1%
I	22	3.9%	7	4.6%	18	4.4%	3	4.0%	3	1.5%	3	3.9%	7	2.5%	0	0.0%
NW	44	7.8%	8	5.2%	37	9.1%	4	5.3%	1	0.5%	0	0.0%	2	0.7%	0	0.0%
W	51	9.0%	16	10.5%	40	9.8%	8	10.7%	8	3.9%	6	7.9%	13	4.6%	4	10.5%
Total	567	100.0%	153	100.0%	407	100.0%	75	100.0%	205	100.0%	76	100.0%	285	100.0%	38	100.0%
A - C Completion	329	58.0%	89	58.2%	225	55.3%	42	56.0%	146	71.2%	46	60.5%	203	71.2%	23	60.5%
A - D Completion	380	67.0%	108	70.6%	258	63.4%	51	68.0%	171	83.4%	54	71.1%	234	82.1%	26	68.4%

Interpretations of these findings as well as suggestions for further analysis are always welcome. Please direct questions and comments to Thomas Fallon, Dean of Institutional Research and Planning, via phone at 978-556-3866 or email at tfallon@necc.mass.edu.