
Miner Learning Center: Impact on First-Term Students

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Executive Summary

This study analyzes the impact of the Miner Learning Center’s services on academic success. The analysis revealed that using the MLC increases a first term student’s odds of earning a higher grade, passing a course, and having a higher semester GPA. Using the MLC’s services had a statistically significant impact even after controlling for student characteristics and courses. The analysis assessed the overall impact of the MLC’s tutoring services and did not determine whether services were more effective for some courses than others or make assessments about individual tutors. Other student factors such as non-cognitive skills, which were not part of the analysis, may also impact student success. Nevertheless, encouraging UTEP students to use the MLC’s services may contribute to their improved academic performance.

Background

This study assesses whether assistance from the Miner Learning Center (MLC) improved student academic outcomes as measured by grades. This analysis focuses on first-term students who received the MLC’s services from 2017-18 to 2021-22, compared to a control group of students that enrolled in the same courses but did not use the MLC’s services. A total of 4,890 students were included in the analysis (Table 1); forty percent are female, and 34% come from a low-income background. The analysis explored the impact of the MLC on passing the course, the final course grade, and semester GPA.

Table 1: Student Gender and Low-Income Characteristics

Attended MLC	No	Yes	% Attended
Gender			
<i>Female</i>	1634	1077	40%
<i>Male</i>	1536	643	30%
Low-Income			
<i>No</i>	1463	850	37%
<i>Yes</i>	1707	870	34%

Findings

Impact on Final Course Grade

To assess the impact of attending the MLC on final course grades, the grade variable was defined as having the highest category as a grade of A, followed by B, C, D, F, and Z, with “Z” representing students who did not finish the course or did not get a grade. The model controlled for High School Percentile

(HSP) rank, gender, low-income status, and course. The analysis showed that students who attended the MLC were 2.33 times more likely to improve their grades by one level (e.g., from C to B). The regression results are summarized in Table 2.

Table 2: Regression Results for Final Course Grade based on Attendance at the MLC

	Odds to Improve by One Grade Category		
<i>Predictors</i>	<i>Odds Ratios</i>	<i>Confidence Interval</i>	<i>p-value</i>
High School Percentile	1.03	1.02 – 1.03	<0.001
Gender [M]	0.97	0.88 – 1.08	0.554
Low-Income [Y]	0.78	0.70 – 0.85	<0.001
Attended MLC [Y]	2.33	2.08 – 2.63	<0.001
Observations	5,564		

The analysis suggests that the MLC’s services have a positive effect on grades. Although some differences by course were observed, no conclusions about the relative effectiveness of the MLC’s impact by course can be drawn. Our conclusion is limited to the impact of the MLC on grades in general. Our analysis also explored the impact of the number of hours of tutoring. The analysis revealed that each hour spent at the MLC improved the odds of earning a higher grade by 15%. See Table 3.

Table 3: Regression Results for Final Course Grade based on Hours of Attendance at the MLC

	Odds to Improve by One Grade Category		
<i>Predictors</i>	<i>Odds Ratios</i>	<i>Confidence Interval</i>	<i>p-value</i>
High School Percentile	1.03	1.02 – 1.03	<0.001
Gender [M]	0.95	0.86 – 1.05	0.554
Low Income [Y]	0.77	0.69 – 0.85	<0.001
Hours attended	1.15	1.14 – 1.18	<0.001
Observations	5,547		

Impact on Passing a Course

For this analysis, grades were converted to two categories: “P” if the student passed the course and “F” if the student did not pass the course. The odds of passing a course are 3.67 times for those who used the MLC’s services. The regression results are shown in Table 4.

Table 4: Logistic Regression Results for Passing Grades based on Attendance at the MLC

Odds to Earn a Passing Grade			
<i>Predictors</i>	<i>Odds Ratios</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.19	0.14 – 0.25	<0.001
High School Percentile	1.03	1.02 – 1.03	<0.001
Gender [M]	0.95	0.83 – 1.09	0.468
Low Income [Y]	0.77	0.67 – 0.88	<0.001
Attended MLC [Y]	3.67	3.11 – 4.35	<0.001
Observations	5,564		

We used the same approach to explore the impact of hours of tutoring on passing a course. The analysis showed that every hour spent at the MLC improved the odds of passing the class by 44%. The regression results are shown in Table 5.

Table 5: Logistic Regression Results for Passing Grades based on Hours of Attendance at the MLC

Odds to Earn a Passing Grade			
<i>Predictors</i>	<i>Odds Ratios</i>	<i>CI</i>	<i>p</i>
(Intercept)	0.19	0.14 – 0.26	<0.001
High School Percentile	1.03	1.02 – 1.03	<0.001
Gender [M]	0.94	0.82 – 1.08	0.406
Low Income [Y]	0.77	0.67 – 0.88	<0.001
Hours	1.44	1.36 – 1.52	<0.001
Observations	5,547		

Impact on Semester GPA

Finally, we explored the impact of using the MLC’s services on overall academic success by assessing the statistical effect of using the MLC on semester GPA. Our analysis showed that the MLC positively impacted the semester GPA of students who used their services, even after controlling for students’ HSP rank, low-income status, and gender. The average semester GPA for students who used the MLC’s services was 3.20, compared to 2.56 for those who did not use the MLC. We also explored the impact of the MLC’s delivery format (i.e., in-person versus online) on academic success, to ensure that semesters impacted by COVID when students took courses remotely, did not produce confounding results. The analysis showed that the delivery format is not likely to explain overall academic success reflected by their semester GPA. The regression results are shown in Table 6.

Table 6: Linear Regression Results for Semester GPA

	Estimate	Standard Error	P-value
Intercept	1.64	0.0572	<0.001
Attended(Y)	0.509	0.0326	<0.001
High School Percentile	0.0173	0.000596	<0.001
Male	-0.0763	0.0312	0.0144
Low Income (Y)	-0.125	0.0307	<0.001
Online	-0.081	0.0482	0.093

Implications

The analyses showed that students who attended the MLC generally had better academic performance in those courses. However, we note a few limitations. We note first that our approach assessed the overall impact of the MLC’s tutoring services, so we cannot make any assessments about individual tutors. As mentioned earlier, we also cannot determine whether the MLC is more effective specifically for some courses than others. Additionally, the analysis did not account for other factors that could impact student success, such as non-cognitive skills or characteristics. For example, students who used the MLC’s services had a higher average high school percentile rank (68 percentile compared to 60 for the control group), suggesting other factors besides the MLC’s services may explain the difference in improved grades. Nonetheless, the positive impact of the MLC on course success and semester GPA suggests that providing incentives or encouraging students to take advantage of the MLC may help improve academic performance.

Appendix

Appendix 1: Frequency Table by Course and Attendance at the MLC

Courses	Grades																Total Count	Total %
	A		B		C		D		F		S		U		Other			
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%		
ART 1300	145	23%	138	21%	108	17%	61	10%	128	20%	9	1%	2	0%	51	8%	642	100%
Attended	121	33%	96	26%	69	19%	36	10%	28	8%	5	1%		0%	10	3%	365	100%
Not attended	24	9%	42	15%	39	14%	25	9%	100	36%	4	1%	2	1%	41	15%	277	100%
ART 1307	6	29%	9	43%	1	5%	3	14%	2	10%		0%		0%		0%	21	100%
Attended		0%		0%	1	50%		0%	1	50%		0%		0%		0%	2	100%
Not attended	6	32%	9	47%		0%	3	16%	1	5%		0%		0%		0%	19	100%
ART 3300	3	20%	5	33%	4	27%	1	7%	2	13%		0%		0%		0%	15	100%
Attended	2	25%	3	38%	3	38%		0%		0%		0%		0%		0%	8	100%
Not attended	1	14%	2	29%	1	14%	1	14%	2	29%		0%		0%		0%	7	100%
ARTH 1306	9	23%	9	23%	10	26%	2	5%	8	21%		0%		0%	1	3%	39	100%
Attended	3	19%	4	25%	6	38%		0%	3	19%		0%		0%		0%	16	100%
Not attended	6	26%	5	22%	4	17%	2	9%	5	22%		0%		0%	1	4%	23	100%
ASTR 1307	154	22%	198	28%	132	19%	110	16%	70	10%	3	0%	2	0%	33	5%	702	100%
Attended	40	27%	58	39%	25	17%	20	13%	2	1%	1	1%	1	1%	3	2%	150	100%
Not attended	114	21%	140	25%	107	19%	90	16%	68	12%	2	0%	1	0%	30	5%	552	100%
BIOL 1305	196	28%	176	25%	108	15%	60	8%	62	9%	5	1%		0%	105	15%	712	100%
Attended	80	37%	56	26%	42	19%	13	6%	7	3%	1	0%		0%	18	8%	217	100%
Not attended	116	23%	120	24%	66	13%	47	9%	55	11%	4	1%		0%	87	18%	495	100%
BIOL 3314	12	43%	7	25%	3	11%		0%		0%		0%		0%	6	21%	28	100%
Attended	8	53%	4	27%	2	13%		0%		0%		0%		0%	1	7%	15	100%
Not attended	4	31%	3	23%	1	8%		0%		0%		0%		0%	5	38%	13	100%
BIOL 3320	2	5%	3	8%	11	30%	4	11%	4	11%		0%		0%	13	35%	37	100%
Attended		0%	2	13%	3	20%	2	13%	2	13%		0%		0%	6	40%	15	100%
Not attended	2	9%	1	5%	8	36%	2	9%	2	9%		0%		0%	7	32%	22	100%
ESCI 1301	192	41%	138	30%	71	15%	20	4%	28	6%	1	0%		0%	14	3%	464	100%
Attended	68	54%	37	30%	15	12%	2	2%	2	2%		0%		0%	1	1%	125	100%
Not attended	124	37%	101	30%	56	17%	18	5%	26	8%	1	0%		0%	13	4%	339	100%

Courses	Grades																Total Count	Total %
	A		B		C		D		F		S		U		Other			
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%		
GEOL 1211	5	56%		0%	2	22%	2	22%		0%		0%		0%		0%	9	100%
Attended	1	50%		0%	1	50%		0%		0%		0%		0%		0%	2	100%
Not attended	4	57%		0%	1	14%	2	29%		0%		0%		0%		0%	7	100%
GEOL 1313	78	41%	52	28%	30	16%	9	5%	18	10%		0%		0%	2	1%	189	100%
Attended	53	67%	15	19%	9	11%	2	3%		0%		0%		0%		0%	79	100%
Not attended	25	23%	37	34%	21	19%	7	6%	18	16%		0%		0%	2	2%	110	100%
HIST 1301	775	52%	286	19%	126	9%	65	4%	158	11%	7	0%	4	0%	57	4%	1478	100%
Attended	369	64%	105	18%	50	9%	21	4%	21	4%	1	0%	1	0%	7	1%	575	100%
Not attended	406	45%	181	20%	76	8%	44	5%	137	15%	6	1%	3	0%	50	6%	903	100%
HIST 1302	242	51%	78	16%	47	10%	27	6%	56	12%	1	0%	2	0%	20	4%	473	100%
Attended	89	59%	33	22%	18	12%	3	2%	9	6%		0%		0%		0%	152	100%
Not attended	153	48%	45	14%	29	9%	24	7%	47	15%	1	0%	2	1%	20	6%	321	100%
MICR 2340	1	4%	8	33%	6	25%	3	13%		0%		0%		0%	6	25%	24	100%
Attended		0%	2	33%	1	17%	1	17%		0%		0%		0%	2	33%	6	100%
Not attended	1	6%	6	33%	5	28%	2	11%		0%		0%		0%	4	22%	18	100%
PHYS 1403	138	55%	60	24%	28	11%	7	3%	5	2%	1	0%		0%	12	5%	251	100%
Attended	58	69%	23	27%	2	2%		0%		0%		0%		0%	1	1%	84	100%
Not attended	80	48%	37	22%	26	16%	7	4%	5	3%	1	1%		0%	11	7%	167	100%
PHYS 1404	26	62%	7	17%	2	5%		0%	2	5%		0%		0%	5	12%	42	100%
Attended	5	71%	2	29%		0%		0%		0%		0%		0%		0%	7	100%
Not attended	21	60%	5	14%	2	6%		0%	2	6%		0%		0%	5	14%	35	100%
PHYS 2320	6	38%	5	31%	1	6%	1	6%	1	6%		0%		0%	2	13%	16	100%
Attended		0%	1	100%		0%		0%		0%		0%		0%		0%	1	100%
Not attended	6	40%	4	27%	1	7%	1	7%	1	7%		0%		0%	2	13%	15	100%
PHYS 2420	224	41%	130	24%	63	11%	41	7%	35	6%	7	1%		0%	49	9%	549	100%
Attended	79	47%	50	30%	20	12%	11	7%	3	2%	1	1%		0%	5	3%	169	100%
Not attended	145	38%	80	21%	43	11%	30	8%	32	8%	6	2%		0%	44	12%	380	100%
PHYS 2421	9	33%	3	11%	4	15%	1	4%	2	7%	2	7%	2	7%	4	15%	27	100%
Attended	4	57%	1	14%	1	14%		0%		0%		0%		0%	1	14%	7	100%
Not attended	5	25%	2	10%	3	15%	1	5%	2	10%	2	10%	2	10%	3	15%	20	100%

Courses	Grades																Total Count	Total %
	A		B		C		D		F		S		U		Other			
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%		
POLS 2310	204	24%	167	19%	215	25%	62	7%	115	13%	11	1%	3	0%	85	10%	862	100%
Attended	105	37%	66	23%	76	27%	18	6%	9	3%	3	1%	1	0%	4	1%	282	100%
Not attended	99	17%	101	17%	139	24%	44	8%	106	18%	8	1%	2	0%	81	14%	580	100%
POLS 2311	12	22%	15	28%	14	26%	5	9%	7	13%		0%		0%	1	2%	54	100%
Attended	4	31%	6	46%	1	8%		0%	2	15%		0%		0%		0%	13	100%
Not attended	8	20%	9	22%	13	32%	5	12%	5	12%		0%		0%	1	2%	41	100%
PSYC 1301	216	28%	144	19%	115	15%	73	10%	148	19%	4	1%	2	0%	59	8%	761	100%
Attended	108	42%	62	24%	44	17%	12	5%	24	9%	3	1%		0%	7	3%	260	100%
Not attended	108	22%	82	16%	71	14%	61	12%	124	25%	1	0%	2	0%	52	10%	501	100%
PSYC 2312		0%	1	17%	2	33%		0%		0%		0%		0%	3	50%	6	100%
Attended		0%		0%	1	100%		0%		0%		0%		0%		0%	1	100%
Not attended		0%	1	20%	1	20%		0%		0%		0%		0%	3	60%	5	100%
SOCI 1301	41	25%	44	27%	30	18%	18	11%	17	10%		0%		0%	15	9%	165	100%
Attended	23	55%	10	24%	5	12%	2	5%		0%		0%		0%	2	5%	42	100%
Not attended	18	15%	34	28%	25	20%	16	13%	17	14%		0%		0%	13	11%	123	100%
Grand Total	2696	36%	1683	22%	1133	15%	575	8%	868	11%	51	1%	17	0%	544	7%	7567	100%