

One-Year Retention Analysis: LaGuardia First-time Full-time Fall 2022 Freshmen Cohort

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The Office of Institutional Research and Effectiveness constructed an analysis to identify factors contributing to one-year retention of the Fall 2022 first-time freshmen cohort. We started by identifying first-time students (freshmen) and their enrollment status, using LaGuardia's data instead of the data that was reported to IPEDS. Consequentially, we excluded students that were erroneously identified as freshmen (graduated before, had previous degree credits, could not found in our file as taking courses) and took into account the 12/6 credits to identify full- and part-time enrollment. We identified 2,217 freshmen (1,906 full-time and 311 part-time) compared to 2,245 freshmen (1,940 full-time and 305 part-time) in our official IPEDS reporting.

One-year retention for first time full-time freshmen

We started with descriptive statistics comparing the demographics, enrollment characteristics and academic performance indicators of full-time freshmen who were retained after one year and these who were not retained.

Demographics: Comparing those who left with those who remained

- Overall, 59.8% of the full-time freshmen were retained after one year. This number is slightly lower than the "official" IPEDS numbers of 60.2%, probably because the excluded students who were not actually freshmen had a higher likelihood of being retained.
- Women were retained at higher rates compared to men (+8%)
- Asian students had the highest retention rates (70.7%), followed by white (64.7%), Hispanic (58.5%) and Black students (52.7%). Note that while Native American freshmen retention rates were also among the highest (68.4%), because of their small numbers (N=19) these rates are not consistent, and we have seen wide fluctuations over the years.
- International students were retained at higher rates than non-international students (+4%).
- Pell recipients were retained at considerably higher rates compared to non-Pell recipients (+12%).

Demographics	Not Retained		Retained	
Total	767	40.2%	1139	59.8%
Gender				
Female	368	36.4%	644	63.6%
Male	395	44.6%	490	55.4%
Other	4	44.4%	5	55.6%
Race/Ethnicity				
Asian/Pacific Islanders	90	29.3%	217	70.7%
African-American	176	47.3%	196	52.7%
Hispanic	459	41.5%	647	58.5%
Native American	6	31.6%	13	68.4%
White	36	35.3%	66	64.7%
International (included in the race ethnic groups)				
International	51	36.4%	89	63.6%
Non- International	716	40.5%	1050	59.5%
Age				
18 or less	413	39.9%	623	60.1%
19	167	44.2%	211	55.8%
20-22	110	41.8%	153	58.2%
23 or older	77	33.6%	152	66.4%
Average age	19.73		20.22	
Awarded Pell				
Pell	510	37.0%	868	63.0%
No Pell	257	48.7%	271	51.3%

Initial Enrollment indicators

- ASAP freshmen had only slightly higher retention rates - 60.2% compared 59.8% overall and 59.3% for non-ASAP.
- College Discovery (CD) students were retained at considerably higher rates compared to the overall full-time freshmen population (+10%).
- When examining pre-college students, the results are mixed. Students who started at the ACE programs (CUNY Start, Math Start, CLIP) were retained at higher rates. In contrast, USIP students were retained at lower rates. Finally, Early College Initiative (ECI) students were retained at higher rates – it should be noted that only 19 ECI student enrolled as full-time freshmen and they enroll as non-degree students accumulating college credits while at high school

- Only 78% of the full-time freshmen has high school GPA, additional 6% had GED, and 17% did not have any high school performance scores. The average high school GPA was higher for those who retained (78.4) compared to those who left (75.4), with considerably higher rates for students with grades over 80.

Initial enrollment	Not Retained		Retained	
Total	767	40.2%	1139	59.8%
Programs				
ASAP	397	39.8%	601	60.2%
College Discovery (CD)	11	30.6%	25	69.4%
Pre-college				
From ACE	18	34.6%	34	65.4%
USIP	86	44.6%	107	55.4%
ECI	7	36.8%	12	63.2%
High School GPA				
With HS GPA (78%)	628	42.2%	859	57.8%
With GED (6%)	45	41.3%	64	58.7%
HS GPA data				
70 or less	128	56.1%	100	43.9%
70.1 - 75	201	50.9%	194	49.1%
75.1 - 80	164	40.2%	244	59.8%
80.1 - 85	77	30.7%	174	69.3%
More than 85	58	28.3%	147	71.7%
Average HS GPA	75.37		78.39	

Fall 2022 academic indicators

Freshmen attempted Fall equated credits (credits they registered for) and earned credits (credits they passes), ratio of earned to attempted equated credits and withdrawn credits were included in the analysis. Fall indicators for attendance in evening or weekend courses and in both session 1 and session 2 were included as well.

- Students attending evening or weekend courses were retained at slightly lower rates. It could be that these students chose the evening or weekend schedule because they had work and family obligations that generated barriers for retention.
- Students who attended both sessions (fall 1 & fall 2) were retained at considerably higher rates compared to those who only attended session 1. This is probably because as was shown in

previous analytical studies, students who did not enroll in session 2 had lower GPA and pass rates in session 1.

- The number of days before the start of the semester for registering to Fall semester were less for non-retained students.
- Retained students had higher GPA in the Fall compared to non-retained students (+0.6).
- The average credits withdrawn was higher for the non-retained students (+2 credits).
- Since only full-time freshmen are included in the analysis, the average credits attempted was similar for students who were retained and those who were not (0.7 credits more for the retained students).
- However, the retained students earned considerably more credits (+6.8 credits) and their pass rates was significantly higher (+38%).

Fall academic Indicators	Not Retained		Retained	
Attendance				
Attended evening courses				
Yes	282	41.9%	391	58.1%
No	485	39.3%	748	60.7%
Attended session 2				
Yes	622	36.8%	1070	63.2%
No	145	67.8%	69	32.2%
Registration Days before semester started	41.55		49.94	
Academic Performance				
Fall GPA	1.88		2.47	
Average all W credits	3.3		1.2	
Average Credits attempted	15.8		16.5	
Average Credits earned	5.5		12.3	
Ratio of eared to attempted	35.4%		73.7%	

Logistic regression – Identifying the top indicators for one-year retention

The initial logistic regression included all available relevant variables. The variables used that are student demographics, initial enrollment characteristics such as special programs, pre-college information, Pell recipients, high schools GPA, GED indicator, and academic performance and attendance pattens in the fall 2022 semester.

- Gender (1=men, 0=women)
- Race/ethnicity (Asian, Black, and white; Hispanics are used as baseline)
- International students
- Age
- Receiving Pell as a proxy for low income
- The numbers days registering before the start of the Spring 2022 semester
- Special programs (ASAP & CD)
- Pre-college programs (ACE, USIP, ECI)
- High school GPA and since 23% of the freshmen did not have HS GPA information also an indicator for missing (1=missing GPA, 0=valid GPA)
- GED indicator (1=yes, 0=No)
- Taking evening and weened courses (1=yes, 0=No)
- Attending both sessions ((1=yes, 0=No)
- Cumulative equated credits attempted (including remedial credits)
- Cumulative equated credits earned (including remedial credits)
- Fall 2022 GPA
- Successful course completion (ratio of earned to attempted equated credits)
- The number of credits withdrawn (2 variables all W and WNs).

Including all variables in the regression analysis

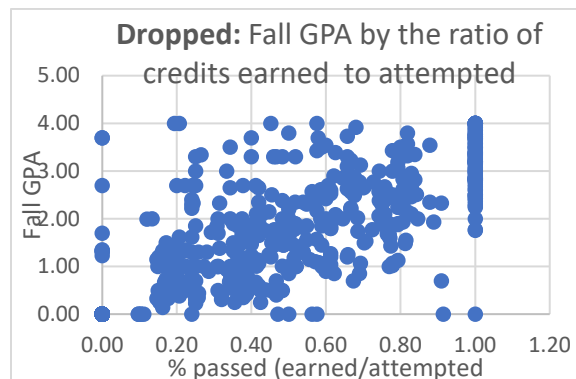
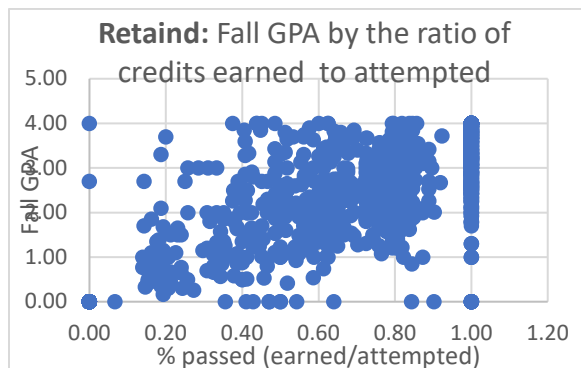
When all relevant variables are included, the proportion of cases with correctly classified registrations is 76%, and the explained variance is 37.9% using Nagelkerke R Square.

The variables below were not significant and were excluded from the follow-up analysis: ASAP, CD, Black or White race/ethnicity as compared to the Hispanic baseline; age all pre-college programs, attending evening or weekend course, number of registration days prior to first day of classes, and all withdrawn credits. Credits earned and the and ratio of credits earned to attempted is highly correlated (0.95), and only one is significant when both are entered, so we rerun the analysis using only the ratio of credit earned to attempted.

Despite a large number of studies showing that high school GPA is strongly related to retention, it was not significant in the analysis. This is probably due to the large number of students with missing this information, although we coded missing GPA scores as 0 to prevent excluding the close to a quarter of the freshmen with the missing information, and added a flag from missing GPA. Substituting missing high school GPA with average GPA instead of missing was also tried, and the high school GPA was not significant in that analysis as well. However, we conducted a separate analysis for students with valid GPA and the High school GPA was not a significant in that analysis as well.

Finally, we dropped the first semester GPA field because it is negatively correlated with the ratio of credits earned to attempted. Examining these two variables show that while there is a linear relationship between GPA and the ratio of credits earned to attempted for retained students, the

relationship is more muddled for students who dropped, where students who dropped had low ratios and low GPA, low GPA and high ratios, and even low ratio and high GPA.



Including the significant variables in the regression analysis

When only significant variables are included, the proportion of cases with correctly classified retention is 75.6%, and the explained variance is 37% using Nagelkerke R Square – very similar to the analysis when all variables, including those that were not significant were used.

Classification Table^a

		Predicted 1 year retention		Percentage Correct
Observed		.00	1.00	
Step 1	1 year retention	.00	462	60.2
		1.00	160	86.0
Overall Percentage				75.6

a. The cut value is .500

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1959.648	0.274	0.370

The table below shows the likelihood of one-year retention of first-time full-time freshmen for all significant variables:

- The ratio of earned to attempted credits has the strongest relation to one-year retention – the higher the ratio of successfully completing the courses the greater likelihood of being retained.
- Attending session 2 is a predictor – student attending session 2 were more likely to be retained.
- Receiving Pell is positively related to retention. This is contrary to national data that show lower retention and graduation rates for Pell recipients.

- Not surprisingly WN credits are negatively related to retention.
- Women are more likely to be retained compared to men.
- Asian freshmen are more likely to be retained compared to all race/ethnic groups.
- Students receiving GED are less likely to be retained, while students with valid high school GOA are more likely to be retained.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	0.307	0.112	7.550	1	0.006	1.359
Asian	0.415	0.164	6.440	1	0.011	1.514
Receiving Pell	0.534	0.125	18.147	1	0.000	1.706
GED flag	-0.746	0.271	7.562	1	0.006	0.474
Attended Fall 2	0.928	0.183	25.840	1	0.000	2.530
Ratio of completed to attempted credits	2.442	0.173	198.951	1	0.000	11.498
High school flag	0.359	0.154	5.445	1	0.020	1.431
WN credits	-0.255	0.044	33.358	1	0.000	0.775
Constant	-2.260	0.221	104.293	1	0.000	0.104

Conclusion

The variables included in the regression analysis explain 37% of the retention variance, which is considered quite high in social sciences research. When controlling for all significant variables available in our databases, the most important predictors of one-year retention are academic performance indicators during the first year – the proportion of successfully completed courses (ratio of credits attempted to earned), attending session 2 (previous research shows that the students who are academically successful in session 1 are more likely to attend session 2), and not withdrawing from courses before attending them (no WN grades). Attaining GED is negatively related to retention, while completing high school (regardless of grades) is positively related to retention. As for demographic variables, women are significantly more likely to be retained compared to men, and Asian students are more likely to be retained compared to all the other race/ethnic groups. Finally, students receiving Pell awards (frequently used as a proxy for low income) are more likely to be retained compared non-Pell recipients – this results are encouraging because in most national retention research Pell recipients are retained at lower levels compared to non-Pell recipients.