

A Look at Factors Affecting Undergraduate and Freshman Retention¹

Report created by OPEIR

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¹ This analysis was produced by OPEIR in response to a specific data request. Results are not necessarily generalizable and attempts to use results outside the scope of this project should be avoided.

 THE UNIVERSITY OF TENNESSEE
CHATTANOOGA

Introduction

Population Description

This analysis examined all undergraduates from academic years 2019-20 to 2021-22 with a focus on first-time full-time freshmen (FTFTF) to identify factors affecting fall-to-fall retention. The following data points were reviewed starting from the fall term of each academic year and examined at each data freeze through the end of the subsequent spring term:

- Gender
- Race/ethnicity
- Full-time/Part-time status
- Age
- In-state/out-of-state residency
- First generation status
- Low Income status defined by Pell Grant eligibility
- Veteran/veteran beneficiary status
- Major changes
- High School GPA
- Registered and earned credits per term
- Initial cumulative GPA
- Term GPAs
- Academic Standing

Each metric was compared individually using statistical measurements to check for significant differences.

Undergraduates who graduated prior to the subsequent fall term are not included in this analysis. Populations and breakout percentages are listed in the table to the right.

Following COVID-19, retention rates dropped between academic years 2019-20 and 2020-21, especially for new freshmen. Three-fourths of the 2019 freshmen population was retained to Fall 2020. However, both population size and the proportion retained have decreased over the last two years. The population of all undergraduates has also decreased, but the change in retention is comparatively less.

Demographic Breakout by Fall Term Population

Demographics	Fall 2019		Fall 2020		Fall 2021	
	All UG	FTFTF	All UG	FTFTF	All UG	FTFTF
Headcount	8,330	2,297	8,342	2,212	8,059	2,057
%Female	56.5%	59.4%	57.3%	61.8%	57.9%	62.9%
%Students of Color ¹	21.5%	22.0%	21.7%	21.5%	22.8%	25.0%
%Adult Learner (25+)	9.4%	<1%	8.8%	<1%	8.5%	<1%
%Out of State	8.3%	5.9%	8.3%	7.6%	9.9%	12.1%
%First Generation ²	20.9%	21.0%	22.0%	24.9%	21.3%	21.8%
%Pell Eligible	33.8%	33.0%	34.7%	38.7%	33.5%	35.6%
%Veteran beneficiary ³	3.6%	3.1%	3.4%	1.9%	3.2%	2.9%
%Part-Time ⁴	9.4%	0.0%	9.6%	0.0%	9.5%	0.0%

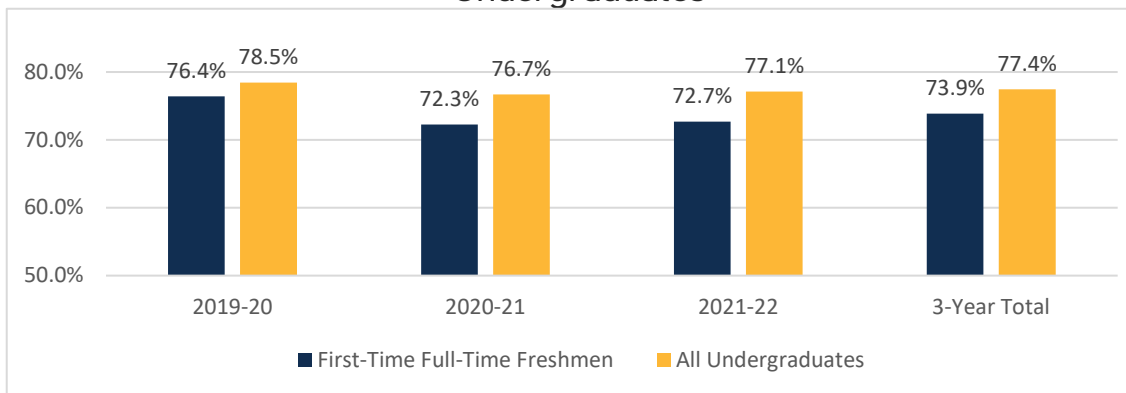
¹Students who do not identify as white or unknown race/ethnicity

²As identified from FAFSA information

³Based on information reported to Veteran Affairs

⁴Enrolled with less than 12 credit hours

Overall Fall-to-Fall Retention for First-Time Full-Time Freshman and All Undergraduates



Differences in Retention Rates

Differences in Retention Rates Among Student Groups

Between gender and race, the largest differences found were in gender. More females are retained than males on average during this time. Differences are significant for the full time period, but this varies in individual years (see Appendices A & B for details). UTC retained slightly fewer undergraduate students of color in Falls 2019 and 2021, but no significant differences were found for first-time full-time freshmen.

Significant differences in retention were found between full-time and part-time undergraduates (Appendix C). On average, less than 30% of all part-time undergraduates do not return the following spring and half are retained to the next fall. With approximately ten percent of the examined undergraduate population enrolling part time, this makes a meaningful difference in the headcount of retained students.

Undergraduates aged 23 and older show lower retention for all three years. On average, the rate is between 11% and 15% lower than all undergraduates. Together these two groups account for 22% of all undergraduates who do not graduate and do not return to UTC by the following fall term.

Veterans are retained at a lower rate than spouses and dependent beneficiaries, and both are retained at lower rates than other undergraduates for the last three years. In particular, Fall 2020 undergraduates saw a nine percent decrease compared to Fall 2019 and Fall 2021. The same results were found for first-time full-time freshmen but should be interpreted with consideration as the annual size of new veteran beneficiaries are small (Appendix E). One cause of this may be military deployment or transfer affecting the student's ability to stay at UTC.

Retention Rates by Gender and Race/Ethnicity

Demographic	All Undergraduates		FTFTF	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
Female	4,718	78.2%	1,341	75.5%
Male	3,526	76.4%	847	71.1%
Student of Color	1,816	74.7%	499	72.9%
White/Unknown	6,428	78.2%	1,690	74.1%
All Students	8,244	77.4%	2,189	73.8%

Undergraduate Retention Rate by Enrollment Status

Enrollment Status	Avg. Enrolled Annually	Retained to Spring	Retained to Fall
Full-Time	7,460	90.7%	80.2%
Part-Time	784	68.3%	50.8%

Undergraduate Retention Rate by Age

Age Range	Avg. Enrolled Annually	Retained
<18	127	73.0%
18-19	3,840	77.2%
20-22	3,179	82.8%
23-24	362	66.3%
25+	735	62.0%

Retention for Veteran Beneficiaries

Veteran Beneficiary Status	All Undergraduates		FTFTF	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
Veteran	129	67.6%	16	55.2%
Spouse or Dependent	152	72.0%	43	59.7%

Differences in Retention Rates Among Student Groups Continued

First generation and low-income metrics show a similar result for retention. Both confirmed first generation undergraduates and low-income undergraduates were retained at lower rates compared to the overall student body. However, significant differences were found for students whose first generation or low-income statuses are unknown due to the lack of FAFSA-reported information. Both metrics show a retention difference of eight percent between an unknown and confirmed status and an 11% difference from overall retention. These results were found to be significant for Fall 2020 and 2021 freshmen (Appendix F & G).

The total number of out of state undergraduates have increased over the last three years, but the proportion retained has decreased. Due to the COVID-19 pandemic, UTC experienced a five percent drop in one-year retention between academic years 2019-20 and 2020-21. Significant differences were found for these corresponding years (Appendix H). More students are enrolling from bordering states eligible for border state tuition, specifically Georgia and Alabama, but their retention rates have declined. The largest population of UTC students from a state not bordering Tennessee come from Florida; UTC retained just 54% of such undergraduates over three years (n = 27; Out-of-State Undergraduate Retention by State of Residency table).

Changing majors affect retention differently depending on timing. Changing programs by the end of fall semester causes no significant changes to retention (Appendix I). Undergraduates and first-time freshmen who changed majors in the first two weeks of spring saw a marginal increase in retention. However, first-time freshmen who changed programs in spring after two weeks (i.e., post-14th day) saw a 17% higher retention than students who kept the same major since their initial fall term; overall undergraduate rates saw a thirteen percent increase.

Undergraduate Retention by First Generation and Low-Income Status

Status	First Generation		Low-Income	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
Eligible	1,767	74.2%	2,803	74.3%
Ineligible	5,431	80.6%	4,353	82.3%
Unknown	1,046	66.0%	1,088	66.1%

Out-of-State Undergraduate Retention by State of Residency

State	Term	Enrolled	Retained
Alabama	Fall 2019	46	91.3%
	Fall 2020	60	75.0%
	Fall 2021	73	67.1%
Georgia	Fall 2019	372	75.5%
	Fall 2020	404	72.3%
	Fall 2021	461	73.1%
Florida	Fall 2019	23	47.8%
	Fall 2020	12	83.3%
	Fall 2021	15	40.0%
All Other States	Fall 2019	99	76.8%
	Fall 2020	116	66.4%
	Fall 2021	168	69.6%
International Students	Fall 2019	95	81.1%
	Fall 2020	67	79.1%
	Fall 2021	53	73.6%

Retention for Undergraduates and First-Time Full-Time Freshmen Who Changed Majors

Changed Majors by...	All Undergraduates		FTTF	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
End of Fall	686	76.2%	338	73.1%
Spring 14th day	210	80.1%	91	74.6%
End of Spring	434	89.7%	266	89.0%
No Change, Same Major	7,023	76.8%	1,568	71.8%

Differences in Retention due to Academic Preparation and Performance

Both ACT composite score and high school GPA have a significant relationship to retention (Appendix J & K). The higher the score or GPA reported, the more likely undergraduates and first-time full-time freshmen are retained to next fall. Students with no reported ACT score due to various reasons (e.g., not required for application type, waived, not provided) show a comparable retention rate to those with a reported score in the lower ranges.

Both term-by-term performance and starting undergraduate cumulative GPA are also significantly related to retention (Appendix L & M). Students who earned a higher GPA in fall and/or spring were more likely to return. Likewise, undergraduates with higher cumulative GPAs in the initial fall term were also retained at a higher rate. The same also shows for first-time full-time freshmen with a college GPA earned from prior learning assessments (PLA). One point of interest is that starting freshmen with no prior learning assessments (i.e., did not dual enroll or complete AP courses) hold a higher retention rate than freshmen who started at UTC with a 2.49 or less. However, this is likely due to the small comparison size as less than two percent of all freshmen enroll at UTC with less than a cumulative 2.5 GPA, whereas sixty-three percent of all freshmen begin with no initial college GPA.

Retention Rates by Highest ACT Composite Score Received

ACT Composite Score Group	All Undergraduates		FTFTF	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
<=16	174	68.6%	40	67.7%
17-19	955	72.2%	268	65.2%
20-22	2,024	76.9%	587	70.7%
23-25	1,915	80.3%	549	76.2%
26-28	1,292	82.6%	357	79.4%
29-31	660	84.3%	200	83.6%
32+	195	88.3%	61	87.3%
No Score Provided	1,030	66.4%	127	63.1%

Retention Rates by Reported High School GPA

High School GPA	All Undergraduates		FTFTF	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
<1.5	7	34.7%	1	0.0%
1.5-1.99	35	62.7%	1	100.0%
2.0-2.49	157	62.8%	13	38.8%
2.5-2.99	779	66.0%	160	52.3%
3.0-3.49	2,274	72.9%	601	64.0%
3.5+	4,695	83.7%	1,391	81.5%
GPA Unknown	296	53.3%	23	48.6%

First-Time Full-Time Freshman Retention Rate by PLA GPA

Initial Cumulative GPA	Avg. Enrolled Annually	Retained
<1.5	5	57.1%
1.5-1.99	3	68.3%
2.0-2.49	27	65.6%
2.5-2.99	52	69.1%
3.0-3.49	174	75.8%
3.5+	535	87.8%
No PLA	1,392	68.6%

Differences in Retention due to Academic Preparation and Performance Continued

Together with GPA performance, differences were found in the number of credits registered and earned per term (Appendix N & O). The highest undergraduate retention rates for credits registered in the spring and fall terms enrolled with 15 credits or higher. Most undergraduates took between 16 to 17 credits in the fall and 15 credits in the spring; most finish each term with 13 to 14 earned credits. First-time full-time freshmen register for a similar number of credits, though they are likely to earn more. In the spring, most freshmen continue to take 16 to 17 credits but tend to earn just 13 to 14.

Undergraduates and first-time full-time freshmen who enter academic probation, suspension, or are academically dismissed at any time in the year are retained at a significantly lower rate to the following fall term (Appendix P). Just thirty-five percent of all undergraduates in probation at the beginning of fall over the last three years returned the subsequent fall. The likelihood of probationary students returning increases the later they enter probation, up to 50 percent by the end of spring. Exceptions to this were first-time full-time freshmen starting in Fall 2020 and all undergraduates for Spring 2020 due to the academic freeze enacted in response to the COVID-19 pandemic.² Interestingly, a quarter of all suspended or dismissed students in the spring were still able to return for fall, presumably via academic appeals.

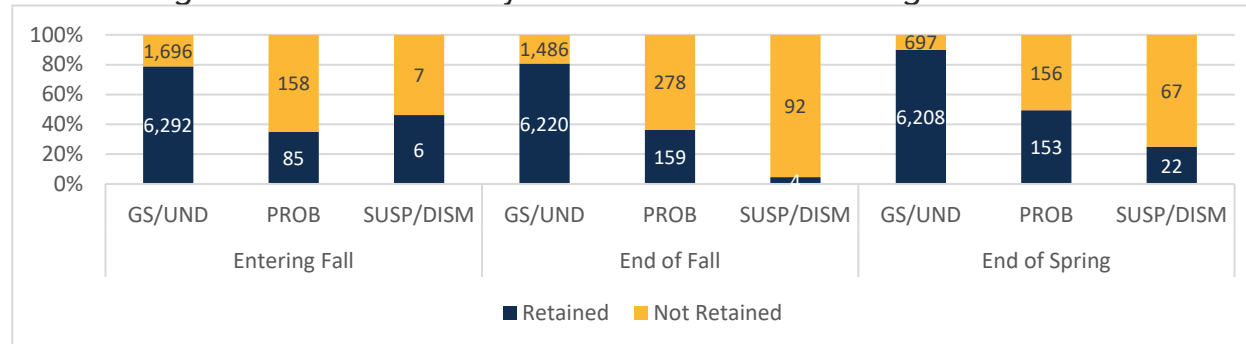
Undergraduate Retention by Credits Registered per Term

Credit Groups	Fall Credits Registered		Spring Credits Registered	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
<6	176	32.4%	140	56.0%
6-11	608	56.2%	559	74.0%
12	1,033	72.7%	1,195	84.3%
13-14	1,994	78.3%	1,614	88.3%
15	1,980	82.9%	1,758	91.1%
16-17	2,082	82.2%	1,530	91.2%
18+	371	86.1%	508	91.9%

Undergraduate Retention by Credits Earned per Term

Credit Groups	Fall Credits Earned		Spring Credits Earned	
	Avg. Enrolled Annually	Retained	Avg. Enrolled Annually	Retained
<6	920	25.2%	713	46.3%
6-11	1,333	64.7%	1,088	80.5%
12	1,115	83.3%	1,210	91.2%
13-14	1,780	86.8%	1,480	94.0%
15	1,441	91.1%	1,384	95.5%
16-17	1,420	90.6%	1,081	95.4%
18+	235	93.9%	348	96.0%

Undergraduate Retention by Initial Academic Standing and End of Term³



² For academic impacts from the grade freeze, please refer to [Impact on Retention from Temporary Changes to Academic Policy](#)

³ GS/UND – Good Standing/Undefined; PROB – Probation; SUSP/DISM – Suspension/Dismissal

Conclusions

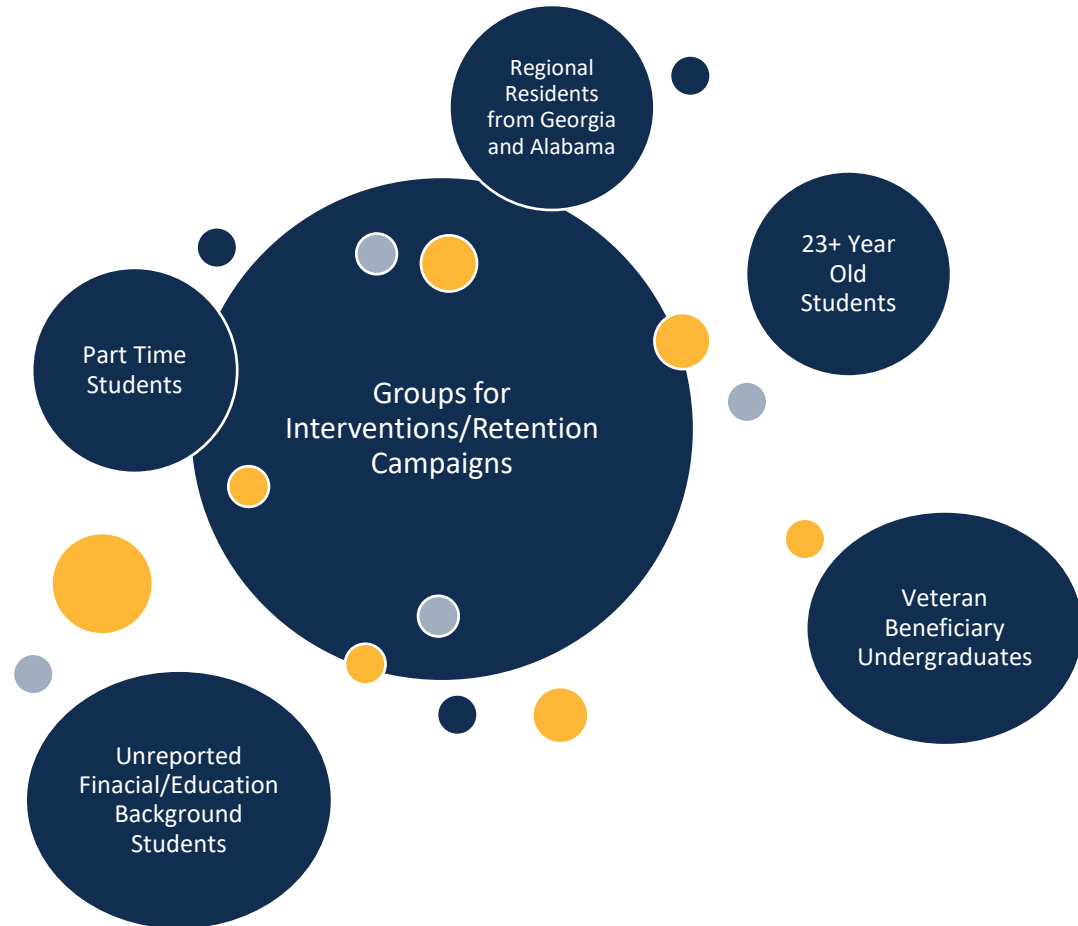
Recommended Next Steps

This analysis found several demographic groups that could be candidates for interventions or retention campaigns. The differences found for part-time, older (i.e., age 23+), and veteran beneficiary undergraduates and students with an unreported financial or education background are of particular interest for subsequent analyses. Each of these groups show a large difference in the number of undergraduates who elect not to return to UTC. Secondly, regional residents from Georgia and Alabama should also be considered as a group of interest; improving retention from these growing populations would make a significant difference in enrollment in subsequent terms.

One positive outcome found is the improvement in retention for all undergraduates and first-time freshmen enrolled in 15 or more credit hours per semester. Beginning in Fall 2019, UTC's Soar in Four initiative is a likely factor influencing the difference in retention. Once Spring 2023 degrees are awarded, UTC will have a first complete cohort to compare four-year graduation rates and begin examining the long-term effects of Soar in Four.

While several key groups and metrics were identified here, interactions between these factors have not yet been assessed. Together with an emphasis on the sub-groups identified, subsequent analysis will also use multivariate measures to identify retention predictors for entering students and early performance predictors for returning undergraduates.

Groups for Interventions or Retention Campaigns



Appendices

Appendix A. Chi-Square Analysis for Gender

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	4.885*	8,330	7.477**
AY2020-21	2,212	6.736**	8,342	6.393**
AY2021-22	2,057	4.307*	8,059	0.583
3-Year Total	6,566	15.042**	24,731	11.953**

Appendix B. Chi-Square Analysis for Students of Color

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	0.036	8,330	13.376**
AY2020-21	2,212	0.346	8,342	2.609
AY2021-22	2,057	0.517	8,059	17.909**
3-Year Total	6,566	0.821	24,731	30.137**

Appendix C. Chi-Square Analysis for Undergraduate Full-Time/Part-Time Status

Academic Year	N	χ^2
AY2019-20	8,330	375.066**
AY2020-21	8,342	397.303**
AY2021-22	8,059	288.708**
3-Year Total	24,731	1,057.379**

Appendix D. Chi-Square Analysis for Age Groups

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	11.263**	8,330	202.32**
AY2020-21	2,212	26.211**	8,342	218.942**
AY2021-22	2,057	4.034	8,059	135.234**
3-Year Total	6,566	28.085**	24,731	541.213**

Appendix E. Chi-Square Analysis for Veteran Beneficiaries

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	10.811**	8,330	7.293*
AY2020-21	2,212	8.907**	8,342	20.763**
AY2021-22	2,057	12.749**	8,059	8.521**
3-Year Total	6,566	23.417**	24,731	30.304**

Appendix F. Chi-Square Analysis for First Generation Status

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	4.086	8,330	94.166**
AY2020-21	2,212	32.836**	8,342	147.971**
AY2021-22	2,057	24.347**	8,059	123.814**
3-Year Total	6,566	53.799**	24,731	353.022**

* p < .05

** p < .025

Appendix G. Chi-Square Analysis for Low-Income Status

Appendix H. Chi-Square Analysis for In-State/Out-of-State Residency

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	16.526**	8,330	116.638**
AY2020-21	2,212	69.398**	8,342	202.604**
AY2021-22	2,057	40.133**	8,059	155.294**
3-Year Total	6,566	117.06**	24,731	465.498**

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	7.543**	8,330	3.718
AY2020-21	2,212	3.507	8,342	16.336**
AY2021-22	2,057	0.243	8,059	20.328**
3-Year Total	6,566	8.577**	24,731	37.547**

Appendix I. Chi-Square Analysis for Program Changes

By End of Fall Term

By Spring 14th Day

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	4.098*	8,330	2.001
AY2020-21	2,212	0.63	8,342	0.037
AY2021-22	2,057	2.747	8,059	0.721
3-Year Total	6,566	0.347	24,731	1.854

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,075	8.144**	7,373	16.691**
AY2020-21	1,960	4.019*	7,387	14.298**
AY2021-22	1,851	1.196	7,149	2.716
3-Year Total	5,886	11.8**	21,909	29.525**

By End of Spring Term

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,075	4.217*	7,373	0.794
AY2020-21	1,960	10.448**	7,387	4.975*
AY2021-22	1,851	14.805**	7,149	1.495
3-Year Total	5,886	27.626**	21,909	6.269**

* p < .05
 ** p < .025

Appendix J. Chi-Square Analysis for Program Changes by ACT Composite Score

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	36.432**	8,330	147.629**
AY2020-21	2,212	60.149**	8,342	192.275**
AY2021-22	2,057	63.553**	8,059	153.695**
3-Year Total	6,566	146.866**	24,731	460.903**

Appendix K. Chi-Square Analysis for Program Changes by High School GPA

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	94.203**	8,330	270.907**
AY2020-21	2,212	173.198**	8,342	388.091**
AY2021-22	2,057	174.125**	8,059	329.537**
3-Year Total	6,566	430.488**	24,731	952.949**

Appendix L. Chi-Square Analysis for Program Changes by Cumulative GPA in Initial Fall Term

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	72.099**	8,330	642.549**
AY2020-21	2,212	72.801**	8,342	577.454**
AY2021-22	2,057	94.361**	8,059	817.592**
3-Year Total	6,566	231.531**	24,731	2,005.088**

Appendix M. Chi-Square Analysis for Program Changes by Term GPA

Fall Term GPA

Spring Term GPA

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,296	475.93**	8,325	1,657.114**
AY2020-21	2,211	605.739**	8,335	1,808.713**
AY2021-22	2,055	525.826**	8,054	81,792.261**
3-Year Total	6,562	1,592.276**	24,714	5,245.019**

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,075	335.566**	7,373	936.077**
AY2020-21	1,950	476.935**	732	1,357.154**
AY2021-22	1,848	481.662**	7,143	1,400.539**
3-Year Total	5,873	1,306.572**	21,848	3,174.473**

* p < .05

** p < .025

Appendix N. Chi-Square Analysis for Program Changes by Credits Registered per Term

Fall Credits Registered

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	11.949**	8,330	486.019**
AY2020-21	2,212	30.552**	8,342	513.985**
AY2021-22	2,057	23.564**	8,059	374.736**
3-Year Total	6,566	56.515**	24,731	1,367.69**

Spring Credits Registered

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,075	38.599**	7,373	223.329**
AY2020-21	1,960	100.734**	7,387	514.308**
AY2021-22	1,851	42.269**	7,149	192.359**
3-Year Total	5,886	169.157**	21,909	899.914**

Appendix O. Chi-Square Analysis for Program Changes by Credits Earned per Term

Fall Credits Earned

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,297	427.761**	8,330	1,822.353**
AY2020-21	2,212	576.28**	8,342	2,186.526**
AY2021-22	2,057	528.326**	8,059	2,001.631**
3-Year Total	6,566	1,534.304**	24,731	6,008.436**

Spring Credits Earned

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,075	396.8**	7,373	1,155.573**
AY2020-21	1,960	562.299**	7,387	1,592.971**
AY2021-22	1,851	497.707**	7,149	1,425.203**
3-Year Total	5,886	1,476.336**	21,909	4,192.573**

* p < .05

** p < .025

Appendix P. Chi-Square Analysis for Program Changes by Academic Standing Received

Initial Fall Academic Standing for Undergraduates

Academic Year	N	χ^2
AY2019-20	8,330	298.928**
AY2020-21	8,342	146.235**
AY2021-22	8,059	376.419**
3-Year Total	24,731	796.041**

Fall End of Term Academic Standing

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,296	274.726**	8,325	1,009.219**
AY2020-21	ACADEMIC FREEZE		8,338	179.342**
AY2021-22	2,055	362.836**	8,054	1,200.11**
3-Year Total	6,562	564.792**	24,717	2,285.589**

Spring End of Term Academic Standing

Academic Year	FTFTF		All Undergraduates	
	N	χ^2	N	χ^2
AY2019-20	2,075	157.18**	7,373	405.105**
AY2020-21	1,960	322.933**	7,387	796.34**
AY2021-22	1,851	454.08**	7,149	1,045.919**
3-Year Total	5,886	961.98**	21,909	2,282.084**

* p < .05

** p < .025