## **RESEARCH BRIEF**

UNCG Office of Institutional Research



## THIRD-YEAR RETENTION

This Research Brief provides information regarding third-year retention rates among students who started as freshmen at UNCG from Fall 2015 through 2017. Pre-academic, sociodemographic, and academic profiles are compared for students who do not return to UNCG after their sophomore year versus those who do return for their junior year.

## RESEARCH QUESTIONS

This Research Brief examines third-year retention rates within UNCG's freshman cohorts. The main research question (RQ) addressed in this brief is as follows:

**RQ1.** What are the profiles of students who depart after sophomore year and those who return for junior year?

### MAJOR FINDINGS

• About one-third of the transfer students that graduate from UNCG entered with an associate degree.

RQ1

- Average time to graduation is 3.25 years for transfer students overall.
- For students who transferred with an associate degree average time to graduation was 2.56 years.
- ...

## METHODOLOGY

For RQ1, transfer students were identified who graduated in the past three academic years. Within this population, transfer students with a prior associate degree were identified. The two comparison groups were thus transfer students who had completed an associate degree before coming to UNCG, and transfer students who had no prior associate degree.

(GLM). To address RQ3, the first instance of a completed science or mathematics course at UNCG was identified for each transfer student in the population. This analysis was focused on math or science courses taken within the first year of transfer to UNCG. If a student took, for example, two math courses in their first term, an average grade was calculated for the two courses. Average course grades for those with a prior associate degree were compared to those with no prior degree.

#### DATA

The population for this research was UNCG's transfer students who earned a degree from UNCG within the past three academic years. The past three academic years include 2016-17, 2017-18, and 2018-19. Academic years capture degrees awarded in Summer, Fall, and Spring; i.e. the 2016-17 academic year includes Summer 2016, Fall 2016, and Spring 2017.

At the time this Brief was written, Spring 2019 graduation data was not yet available. Therefore, the 2018-19 academic year data includes Summer 2018 and Fall 2018 degrees only.

The identified population of transfer students who obtained a degree in the past three academic years was then divided into two groups; transfer students bringing in a completed associate degree, and those without prior degrees.

#### FINDINGS

Over the past three years, about one-third of UNCG's graduating transfer students had transferred in with a

completed associate Figure 1 degree. shows the proportion of graduating transfer with students and without prior а associate degree in each of the past three academic years and overall.

## FIGURE 1. FIRST SPRING AND SECOND FALL RETENTION RATES FOR NEW FRESHMEN

Cohort Starting Term	New Freshman Cohort	Retained to	o First Spring	Retained to Second Fall		
	N	n	%	n	%	
Fall 2015	2,773	2,549	91.9	2,113	76.2	
Fall 2016	2,850	2,648	92.9	2,205	77.4	
Fall 2017	2,791	2,574	92.2	2,127	76.2	
Three Year Trend	8,414	7,771	92.4	6,445	76.6	

**Figure 2** presents the average time to graduation for all transfer students, as well as average time to graduation for transfer students with a prior associate degree versus those with no prior associate degree. Across all transfer students, the average time to graduation was 3.25 years. For students who transferred in with a completed associate degree, the average time to graduation was just 2.56 years. The students who transferred in without a prior associate degree took on average 3.59 years to graduate. Overall, the difference in time to graduation for a transfer student with a prior associate degree versus

3 shows that for students with a prior associate degree, time to graduation was clustered around 2.5 years (representing 20% of the group) and ranged between 1 and 3.5 years for the majority of this group. For students with no prior associate degree, time to graduation was clustered around 3.5 years and ranged between 1.5 and 5.5 years for the majority of this group. The density plots for the two groups intersected at 2.5 years, and the percent of transfer students taking 2.5 years or more to graduate was always greater for students with no prior associate degree.

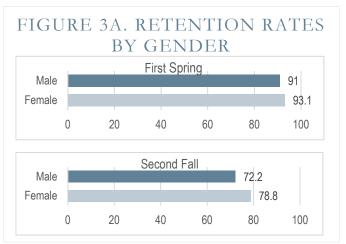
a transfer student with no prior associate degree was just over one full year.

Figure 3 compares the percentage distribution of degrees awarded over time for transfer students entering with an associate degree versus no prior degree. Figure 3 includes histograms as well as density plots for each group. Plots for the two transfer groups are overlaid to allow for comparisons between the groups. Students who transferred in to UNCG with a completed associate degree are represented by the color red, while those with no prior degree are represented by blue. Figure

# FIGURE 2. ACADEMIC ABILITY PROFILE OF NEW FRESHMEN

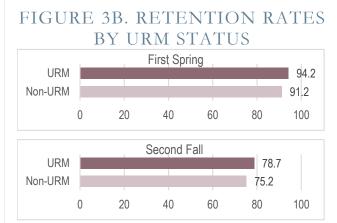
Average	Cohort Starting	Overall Freshman	Retair First S		Retained to Second Fall		
	Term	Cohort	No	Yes	No	Yes	
	Fall 2015	3.62	3.54	3.63	3.50	3.66	
High School	Fall 2016	3.82	3.67	3.83	3.60	3.89	
GPA	Fall 2017	3.84	3.62	3.86	3.65	3.90	
	Three Year Trend	3.76	3.61	3.77	3.58	3.82	
SAT Total	Fall 2015	1,020	1,010	1,021	1,006	1,025	
	Fall 2016	1,026	1,027	1,026	1,015	1,029	
	Fall 2017	1,088	1,075	1,089	1,083	1,090	
	Three Year Trend	1,043	1,035	1,044	1,033	1,046	
	Fall 2015	509	505	509	502	511	
SAT Math	Fall 2016	510	506	510	504	512	
SAT Main	Fall 2017	537	533	537	535	538	
	Three Year Trend	518	514	518	513	520	
	Fall 2015	511	504	512	504	514	
SAT Critical	Fall 2016	516	521	516	511	517	
Reading	Fall 2017	554	547	555	551	555	
	Three Year Trend	526	522	527	521	528	
	Fall 2015	22	22	22	21	22	
ACT	Fall 2016	22	22	22	22	22	
Composite	Fall 2017	22	22	22	22	22	
	Three Year Trend	22	22	22	22	22	

First Spring and Second Fall Retention Rates



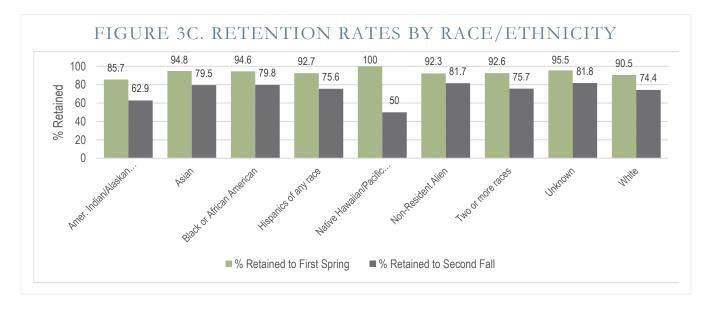
There are some outliers in the data; a small percentage of each transfer group took 8 years or more to complete their degree. The rightmost tail of the histogram show that taking 8 or more years to complete a degree was much more common among transfer students with no prior associate degree.

After calculating the average time to graduation for transfer students with a prior associate degree versus those with no prior degree, a two-sample independent t-test was conducted to determine if the difference was statistically significant. Results of the t-test are shown in **Figure 4**. The t-test determined that there was a statistically significant difference (p<.0001) in years to completion between students who transferred to UNCG with a completed associate degree compared to those who transferred with no prior degree.



To evaluate differences in time to graduation among different majors, a factorial analysis of variance (ANOVA) was conducted using a general linear regression model (GLM). The dependent variable was calendar years to degree for transfer students, and the independent variables were student's major, whether a student had a prior associate degree, and the interaction of those two variables. Results of the GLM are presented in **Figure 5**.

Results show that the overall model was statistically significant (F=3.16, p<.0001), and all independent variables were also statistically significant. Because the interaction term was statistically significant, the main effects of the two independent variables should not be individually interpreted. Focusing on the interaction term, the results show that the null hypothesis (that student's major and the occurrence of a prior associate degree do not interact) was rejected. In other words, the



effect of having a prior associate degree on time to completion does vary on major.

To explore these results further, the model was expanded to examine the effect of having a prior associate degree on time to completion for each specific major. **Figure 6** shows the 13 majors that were statistically significant in this model.

Lastly, there was an interest to see if transfer students with a prior associate degree performed differently in their first math and science classes at UNCG compared to those who entered as transfers without a prior degree. To explore this question, math and science courses taken during the first year after transferring to UNCG were identified for the transfer population. Final course grades were averaged across transfer student group. If a student took more than one math or science course in their first term, an average grade was calculated for the two courses. Overall average course grades for those with a prior associate degree were compared to those with no prior degree.

**Figure 7** shows that a little over half (51.1%) of transfer students take at least one math or science course during their first year at UNCG. Most of the students (75.6%) taking these courses did not transfer a prior associate degree (1,407 of 1862). Also of note is that 57.7% of

FIGURE 4. SOCIOECONOMIC PROFILE OF NEW FRESHMEN First Spring and Second Fall Retention Rates

		Ret	ained to	First Spi	Retained to Second Fall						
Demographic	Cohort Starting	Freshman Cohort		No		Yes		No		Yes	
	Term	Ν	%	n	%	n	%	n	%	n	%
LOW INCOME											
	Fall 2015	1,412	50.9	120	8.5	1,292	91.5	352	24.9	1,060	75.1
Yes	Fall 2016	1,399	49.1	100	7.1	1,299	92.9	316	22.6	1,083	77.4
	Fall 2017	1,510	54.1	111	7.4	1,399	92.6	366	24.2	1,144	75.8
	Three Year Trend	4,321	51.4	331	7.7	3,990	92.3	1,034	23.9	3,287	76.1
	Fall 2015	1,361	49.1	104	7.6	1,257	92.4	308	22.6	1,053	77.4
Ne	Fall 2016	1,451	50.9	102	7.0	1,349	93.0	329	22.7	1,122	77.3
No	Fall 2017	1,281	45.9	106	8.3	1,175	91.7	298	23.3	983	76.7
	Three Year Trend	4,093	48.6	312	7.6	3,781	92.4	935	22.8	3,158	77.2
RURAL											
Yes	Fall 2015	931	33.6	94	10.1	837	89.9	236	25.3	695	74.7
	Fall 2016	905	31.8	73	8.1	832	91.9	194	21.4	711	78.6
	Fall 2017	911	32.6	79	8.7	832	91.3	222	24.4	689	75.6
	Three Year Trend	2,747	32.6	246	9.0	2,501	91.0	652	23.7	2,095	76.3
	Fall 2015	1,842	66.4	130	7.1	1,712	92.9	424	23.0	1,418	77.0
No	Fall 2016	1,945	68.2	129	6.6	1,816	93.4	451	23.2	1,494	76.8
INO	Fall 2017	1,880	67.4	138	7.3	1,742	92.7	442	23.5	1,438	76.5
	Three Year Trend	5,667	67.4	397	7.0	5,270	93.0	1,317	23.2	4,350	76.8
FIRST GENER/	ATION										
	Fall 2015	1,158	41.8	106	9.2	1,052	90.8	304	26.3	854	73.7
Yes	Fall 2016	936	32.8	77	8.2	859	91.8	224	23.9	712	76.1
	Fall 2017	1,004	36.0	97	9.7	907	90.3	269	26.8	735	73.2
	Three Year Trend	3,098	36.8	280	9.0	2,818	91.0	797	25.7	2,301	74.3
	Fall 2015	1,228	44.3	89	7.2	1,139	92.8	265	21.6	963	78.4
No	Fall 2016	1,213	42.6	68	5.6	1,145	94.4	248	20.4	965	79.6
INU	Fall 2017	1,143	41.0	74	6.5	1,069	93.5	241	21.1	902	78.9
	Three Year Trend	3,584	42.6	231	6.4	3,353	93.6	754	21.0	2,830	79.0
	Fall 2015	387	14.0	29	7.5	358	92.5	91	23.5	296	76.5
	Fall 2016	701	24.6	57	8.1	644	91.9	173	24.7	528	75.3
Unknown	Fall 2017	644	23.1	46	7.1	598	92.9	154	23.9	490	76.1
	Three Year Trend	1,732	20.6	132	7.6	1,600	92.4	418	24.1	1,314	75.9

Average	Cohort Starting	Overall	Retained to	First Spring	Retained to Second Fall		
Average	Term	Freshman Cohort	No	Yes	No	Yes	
First	Fall 2015	2.79	1.68	2.87	2.00	3.03	
	Fall 2016	2.81	1.68	2.89	1.92	3.06	
	Fall 2017	2.77	n No Yes 1.68 2.87	2.85	1.87	3.03	
	Three Year Trend	2.79	1.67	2.87	1.93	3.04	
	Fall 2015	2.82	2.06	2.83	1.97	3.01	
	Fall 2016	2.82	1.83	2.82	1.79	3.03	
GPA	Fall 2017	2.79	3.12	2.79	1.77	3.00	
	Three Year Trend	2.81	2.13	2.81	1.84	3.01	
	Fall 2015	2.76	1.69	2.85	1.94	3.01	
First Year	Fall 2016	2.77	1.68	2.85	1.84	3.04	
Cumulative GPA	Fall 2017	2.73	1.64	2.81	1.78	3.01	
GFA	Three Year Trend	2.75	1.67	2.83	1.85	3.02	

## FIGURE 5. FIRST YEAR GPA FOR NEW FRESHMEN First Spring and Second Fall Retention Rates

those with no prior degree take a math or science course in first year, while only 37.6% of those with a prior associate degree took a math or science course in their first year. no prior degree, a two-sample independent t-test was conducted to determine if the difference was statistically significant. Results of the t-test are shown in **Figure 8**. The t-test determined that there was no statistically significant difference in course grade for those who transferred to UNCG with a completed associate degree compared to those who transferred with no prior degree.

After calculating the average course grades for transfer students with a prior associate degree versus those with

_		<b>Overall Fres</b>	Retained to First Spring				Retained to Second Fall					
Demographic	Cohort Starting Term			No Ye			es		No		Yes	
		N	%	n	%	n	%	n	%	n	%	
GENDER		4 000	07.4			4 70 4	00.4	400	04.0	4 450		
	Fall 2015	1,862	67.1	141	7.6	1,721	92.4	403	21.6	1,459	78.4	
Female	Fall 2016	1,899	66.6	119	6.3	1,780	93.7	378	19.9	1,521	80.1	
i cinaic	Fall 2017	1,846	66.1	129	7.0	1,717	93.0	408	22.1	1,438	77.9	
	Three Year Trend	5,607	66.6	389	6.9	5,218	93.1	1,189	21.2	4,418	78.8	
	Fall 2015	911	32.9	83	9.1	828	90.9	257	28.2	654	71.8	
	Fall 2016	951	33.4	83	8.7	868	91.3	267	28.1	684	71.9	
Male	Fall 2017	945	33.9	88	9.3	857	90.7	256	27.1	689	72.	
	Three Year Trend	2,807	33.4	254	9.0	2,553	91.0	780	27.8	2,027	72.	
THNICITY		2,001			0.0	_,000	0.10			_,•		
	Fall 2015	9	0.3	2	22.2	7	77.8	3	33.3	6	66.	
American Indian or	Fall 2016	13	0.5	-	-	13	100.0	3	23.1	10	76.	
Alaskan Native	Fall 2017	13	0.5	3	23.1	10	76.9	7	53.8	6	46.	
/ laokan raawo	Three Year Trend	35	0.3	5	14.3	30	85.7	13	37.1	22	62.	
	Fall 2015	148	5.3	8	5.4	140	94.6	27	18.2	121	81. 79.	
Asian	Fall 2016	165	5.8	10	6.1	155	93.9	34	20.6	131		
	Fall 2017	146	5.2	6	4.1	140	95.9	33	22.6	113	77.	
	Three Year Trend	459	5.5	24	5.2	435	94.8	94	20.5	365	79.	
	Fall 2015	866	31.2	44	5.1	822	94.9	181	20.9	685	79.	
Black or African	Fall 2016	786	27.6	32	4.1	754	95.9	146	18.6	640	81.	
American	Fall 2017	898	32.2	62	6.9	836	93.1	187	20.8	711	79.	
	Three Year Trend	2,550	30.3	138	5.4	2,412	94.6	514	20.2	2,036	79.	
	Fall 2015	274	9.9	22	8.0	252	92.0	70	25.5	204	74.	
	Fall 2016	287	10.1	18	6.3	269	93.7	64	22.3	223	77.	
Hispanics of any race	Fall 2017	346	12.4	26	7.5	320	92.5	87	25.1	259	74.	
	Three Year Trend	907	10.8	66	7.3	841	92.7	221	24.4	686	75.	
	Fall 2015	2	0.1	-	-	2	100.0	1	50.0	1	50.	
Native Hawaiian or Other	Fall 2016	3	0.1	-	-	3	100.0	1	33.3	2	66.	
Pacific Islander	Fall 2017	1	0.1	-	-	1	100.0	1	100.0		- 00.	
		6	0.1	-	-	6		3	50.0	- 3	- 50.	
	Three Year Trend	-	<u> </u>	-	-	-	100.0				-	
	Fall 2015	45	1.6	3	6.7	42	93.3	7	15.6	38	84.	
Non-Resident Alien	Fall 2016	27	0.9	3	11.1	24	88.9	8	29.6	19	70.	
	Fall 2017	32	1.1	2	6.3	30	93.8	4	12.5	28	87.	
	Three Year Trend	104	1.2	8	7.7	96	92.3	19	18.3	85	81.	
	Fall 2015	147	5.3	16	10.9	131	89.1	38	25.9	109	74.	
Two or more races	Fall 2016	159	5.6	11	6.9	148	93.1	43	27.0	116	73.	
Two of more faces	Fall 2017	197	7.1	10	5.1	187	94.9	41	20.8	156	79.	
	Three Year Trend	503	6	37	7.4	466	92.6	122	24.3	381	75.	
	Fall 2015	8	0.3	1	12.5	7	87.5	2	25.0	6	75.	
	Fall 2016	7	0.2	-	-	7	100.0	1	14.3	6	85.	
Unknown	Fall 2017	7	0.3	-	-	7	100.0	1	14.3	6	85.	
	Three Year Trend	22	0.3	1	4.5	21	95.5	4	18.2	18	81.	
	Fall 2015	1,274	45.9	128	10.0	1,146	90.0	331	26.0	943	74.	
	Fall 2016	1,403	49.2	128	9.1	1,140	90.9	345	20.0	1,058	74.	
White	Fall 2017	1,403	49.2	120	9.4	1,273	90.9	303	24.0	848	73.	
	Three Year Trend	3,828	41.2	364	9.4	3,464	90.5	979	25.6	2,849	73.	
JNDER-REPRESENTED		5,020	чJ.J	504	3.5	5,404	30.5	313	20.0	2,043	74.	
	Fall 2015	1,052	37.9	60	5.7	992	94.3	234	22.2	818	77.	
Yes	Fall 2015	974	34.2	42	4.3	932	94.5	190	19.5	784	80.	
100	Fall 2017	1,120	40.1	80	7.1	1,040	92.9	245	21.9	875	78.	
	Three Year Trend	3,146	37.4	182	5.8	2,964	94.2	669	21.3	2,477	78.	
	Fall 2015	1,668	60.2	160	9.6	1,508	90.4	417	25.0	1,251	75.	
No	Fall 2016	1,842	64.6	157	8.5	1,685	91.5	446	24.2	1,396	75.	
	Fall 2017	1,632	58.5	135	8.3	1,497	91.7	414	25.4	1,218	74.	
	Three Year Trend	5,142	61.1	452	8.8	4,690	91.2	1,277	24.8	3,865	75.	
	Fall 2015	53	1.9	4	7.5	49	92.5	9	17.0	44	83.	
	Fall 2016	34	1.2	3	8.8	31	91.2	9	26.5	25	73.	
Unknown	Fall 2017	39	1.4	2	5.1	37	94.9	5	12.8	34	87.	

## FIGURE 3. DEMOGRAPHIC PROFILE OF NEW FRESHMEN First Spring and Second Fall Retention Rates

## UNCG OFFICE OF INSTITUTIONAL RESEARCH

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