



Wisdom to make a difference.

*Office of Institutional Research*

## **PREDICTORS OF RETENTION AND PROGRESSION TOWARD GRADUATION**

### ***Part 1:***

### ***First-to-Second-Year Retention and Progression to Sophomore Status, Five Year Trends by Demographic Groups, 2006-2010***

---

#### **EXECUTIVE SUMMARY**

Each fall students enter Keene State College with high hopes and expectations for success. Nationally 57.6% of entering college students reported in 2010 that there was a “very good chance” they would be satisfied with their college experience, the highest rate of positive responses for this question in 28 years (Higher Education Research Institute, 2011, p. 4). Students and their families look to a college degree as the key to students’ future security, especially in difficult economic times (Pryor, 2011). Despite these high expectations, and with so much riding on the students’ success in completing the degree, large numbers of students leave colleges each year without graduating. Pressure has increased from legislators, donors, accreditation agencies, and parents to report and improve retention and graduation rates as a measure of institutional quality. Yet colleges and universities “have not made much progress in moving more students toward degree attainment” (DeAngelo, Frank, Hurtado, Pryor, & Tran, 2011, p. 1). DeAngelo et al. argue, “If institutions are to improve their degree completion rates, they must first be able to accurately assess how effective they are in moving the students they enroll toward graduation” (p. 4) with a particular eye toward the different types of students who enroll.

This document reports a first step in understanding what leads to eventual graduation at Keene State College and identifying any common barriers to students attaining that goal. This is part of a broader study of factors that predict retention or attrition at KSC. The present study, Part 1, focuses on first-to-second-year retention rates because the greatest number of students who leave Keene State (as at other institutions) do so in the first year. This study also considers rates of progression to sophomore status because national research has shown that this is a key predictor of eventual graduation. This analysis looks at student demographic categories (gender, residency, first-generation status, race/ethnicity, and low income status) because previous research has shown these to be important considerations for access to higher education, and because these categories begin to identify some of the different types of KSC students who might require differing support in order to succeed. Finally, this study takes a five-year view, analyzing cohorts that entered in 2006 through 2010, because each group of entering students is somewhat different from others, and a longer view allows the experiences of each cohort to provide a context for interpreting the experiences of the others.<sup>1</sup>

---

<sup>1</sup> The data reported here differ slightly from retention rates reported in previous Keene State College *Factbooks* because IPEDS rules have been applied. These rules require that students who are deceased or who are away for activities such as military deployment or church missions be removed from the analysis. Future *Factbooks* will report retention data consistent with this methodology.

Part 2 of the broader study, to be released soon, will consider the 2010 cohort only, still looking at first-to-second-year retention and progression to sophomore status. In addition to the demographic variables considered here, Part 2 will analyze pre-college variables such as SAT scores, high school GPA, date of application for admission, and unmet financial need; post-enrollment academic variables such as the semester in which key courses are taken and the total number of credits earned in the first semester of enrollment; and post-enrollment non-academic variables such as student conduct violations. Subsequent parts of this analysis will consider factors that affect retention and progression to graduation for the sophomore, junior, and senior years.

## **KEY FINDINGS**

### ***Overall Retention Rates***

Overall first-to-second-year retention rates at Keene State dropped steadily from 2006 to 2009 and then rebounded for the 2010 cohort (79.3% - equal to the average for this 5-year period). The 2009 cohort appears to be an outlier on retention measures, with the lowest overall retention rate, and lower retention rates for women, non-residents, first-generation students, and low-income students as compared to other cohorts in this period.

### ***Retention Rates for Demographic Groups***

There are consistent trends in the data suggesting that racial/ethnic minority students, first-generation students, low-income students, women, and students from outside New Hampshire may be at greater risk of attrition than their peers, but the differences across categories only rarely rose to the level of statistical significance during this five-year period. There were significant differences by first-generation status for the 2007 and 2009 cohorts, but not in the other years. Gender and residency produced significant differences in 2009 and race/ethnicity in 2007 but not for other cohorts. In the most recent cohort (2010), only low-income status produced a significant difference in retention.

### ***Progression to Sophomore Status or Higher***

Generally speaking, for cohorts that entered from 2007 through 2010, roughly three-fifths of students progressed to sophomore status in year two, one-fifth returned to KSC in freshman status, and one-fifth were not retained.

Among 2010 students who were retained, women were significantly more likely than men to progress to sophomore status or higher (77.8% compared to 71.6%); and white students were significantly more likely to progress to sophomore status or higher, as compared to students from racial or ethnic minority groups (77.0% and 60.0%, respectively). The analysis by race/ethnicity requires some cautious interpretation, however, because 13% of the 2010 cohort are coded as race/ethnicity “unreported,” and also because the number of minority students is relatively small.

**DETAILED FINDINGS:**  
**FIRST-TO-SECOND-YEAR RETENTION**

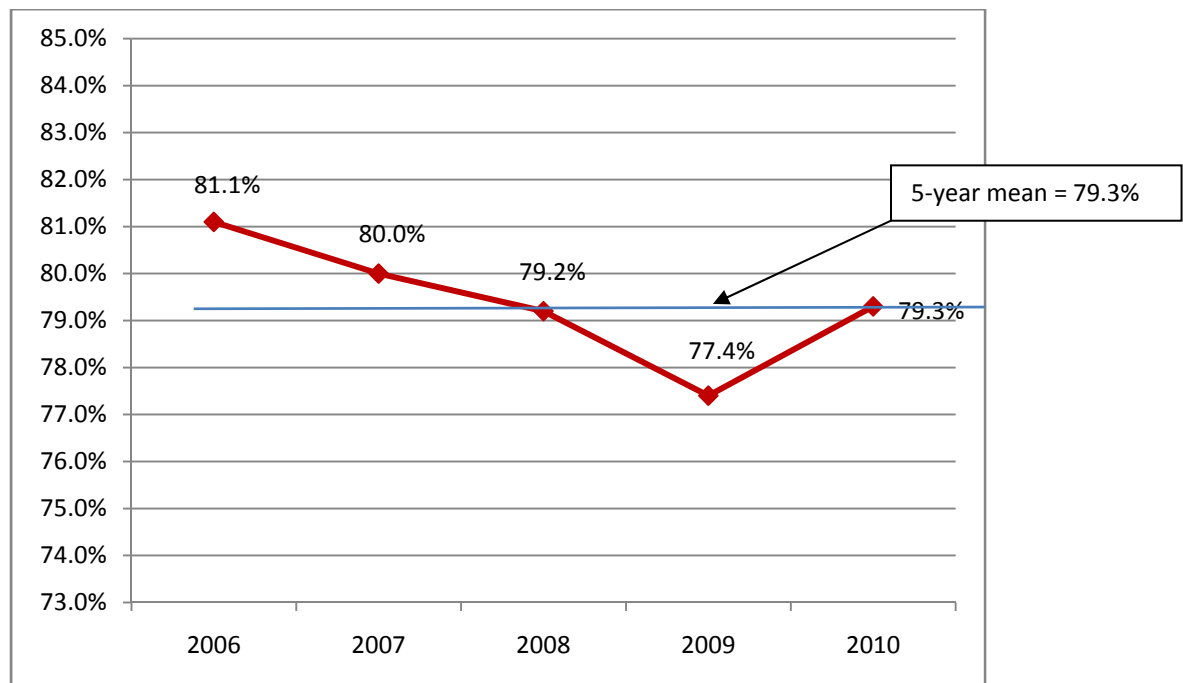
***Overall Retention by Cohort***

Table 1 shows first-to-second-year retention rates for all members of the cohorts in this study. As these data show, overall retention rates dropped steadily from 2006 to 2009 and then rebounded for the 2010 cohort. Figure 1 below displays this pattern graphically, showing a dip in retention rate for the 2009 cohort, followed by a return in 2010 to a rate that equals the mean for this period (79.3%). For Table 1 and all following tables in this report, the Adjusted *N* column refers to the number in the original cohort minus those who are removed from the analysis following IPEDS rules (most commonly for military deployment).

**Table 1**  
**Overall First-to-Second-Year Retention Rates by Cohort Year**

Cohort Year	Adjusted <i>N</i> in Cohort	% Retained
2006	1140	81.1%
2007	1298	80.0%
2008	1296	79.2%
2009	1176	77.4%
2010	1203	79.3%

**Figure 1. Overall Retention Rate, 2006-2010**



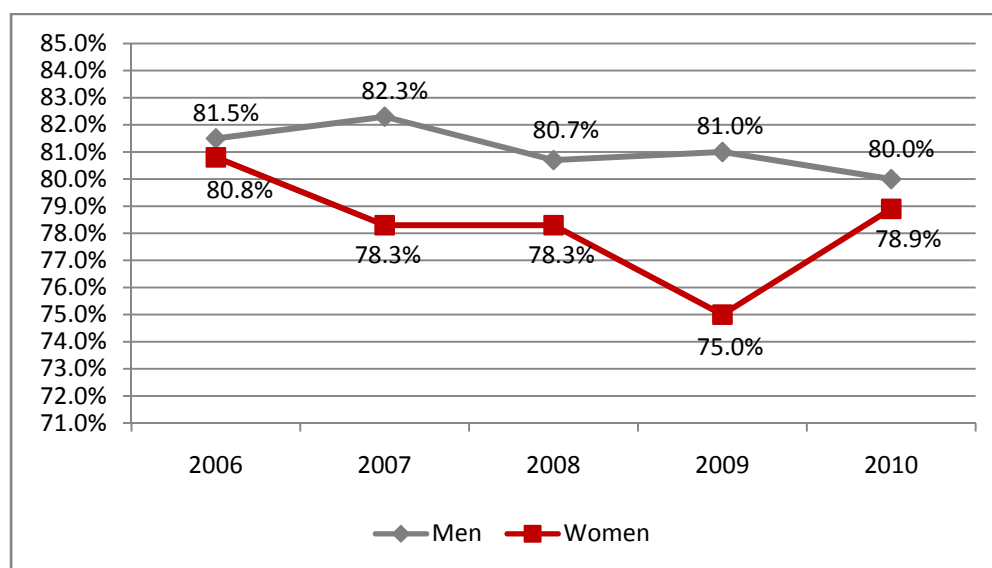
## Gender

The retention rates for men and women are displayed in Table 2. The retention rates for women lagged behind those for men throughout this period, with the widest disparity occurring for the 2009 cohort (a statistically significant difference for that year:  $\chi^2=5.85$ ,  $df=1$ ,  $p=.016$ ). For the 2010 cohort, however, the gap in retention rates for women and men closed to 1.1% (a non-significant difference). Figure 1 provides a graphic depiction of the retention rates by gender.

**Table 2**  
**First-to-Second-Year Retention Rates by Gender**

Cohort Year	Men		Women	
	Adjusted <i>n</i> in Cohort	% Retained	Adjusted <i>n</i> in Cohort	% Retained
2006	421	81.5%	719	80.8%
2007	536	82.3%	762	78.3%
2008	518	80.7%	778	78.3%
2009	464	81.0%	712	75.0%
2010	484	80.0%	719	78.9%

**Figure 2. First-to-Second-Year Retention Rates by Gender**



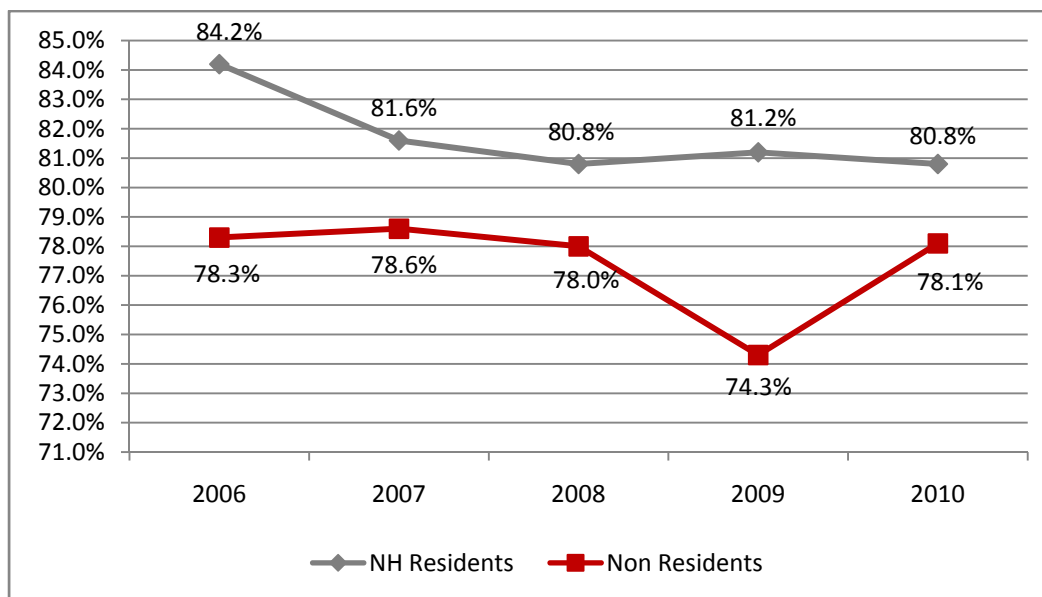
## Residency

Table 3 and Figure 3 display the retention rates for New Hampshire residents vs. non-residents. As with the gender data displayed above, the greatest disparity between retention rates for in-state and out-of-state students occurred with the 2009 cohort, a statistically significant gap which is clear in the graph ( $\chi^2=8.02$ ,  $df=1$ ,  $p=.018$ ). The difference in retention rates for these two groups in the most recent cohort is non-significant.

**Table 3**  
**First-to-Second-Year Retention Rates by Residency**

Cohort Year	NH Residents		Non Residents	
	Adjusted <i>n</i> in Cohort	% Retained	Adjusted <i>n</i> in Cohort	% Retained
2006	526	84.2%	614	78.3%
2007	608	81.6%	690	78.6%
2008	582	80.8%	714	78.0%
2009	527	81.2%	649	74.3%
2010	546	80.8%	657	78.1%

**Figure 3. Retention Rates by Residency**



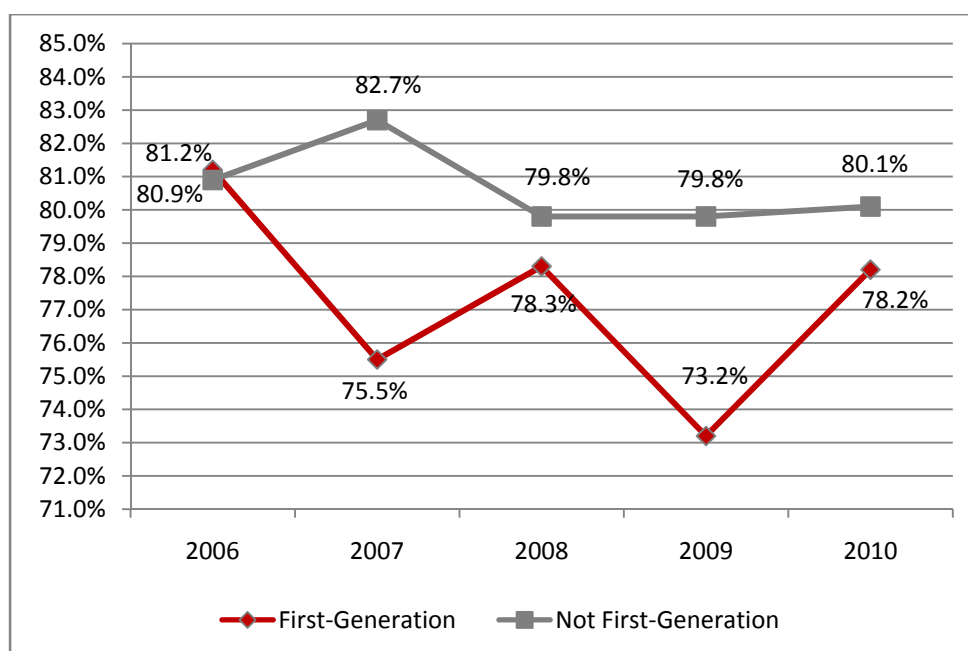
### ***First-Generation Student Status***

Table 4 and Figure 4 show the retention rates for first-generation college students, compared to those who are not first-generation. In general during this 5-year period, first-generation students have been retained at a lower rate than their peers, with statistically significant differences occurring in 2007 and 2009 (2007:  $\chi^2=10.11$ ,  $df=1$ ,  $p=.001$ ; 2009:  $\chi^2=6.86$ ,  $df=1$ ,  $p=.009$ ). The gap closed for the 2010 cohort to less than 2% (a non significant difference). Readers should be aware that first-generation status is coded based on information students supply on the admission application about their parents' education level. Non first-generation students are defined as those who report that one or more parents completed a four-year college degree. First-generation students include both those who report that neither parent completed a four-year college degree and also those who do not report any parent education information at all.

**Table 4**  
**First-to-Second-Year Retention Rates by First-Generation Status**

Cohort Year	First-Generation		Not First-Generation	
	Adjusted <i>n</i> in Cohort	% Retained	Adjusted <i>n</i> in Cohort	% Retained
2006	437	81.2%	703	80.9%
2007	493	75.5%	805	82.7%
2008	502	78.3%	794	79.8%
2009	437	73.2%	739	79.8%
2010	524	78.2%	679	80.1%

**Figure 4. Retention Rates by First-Generation Status**



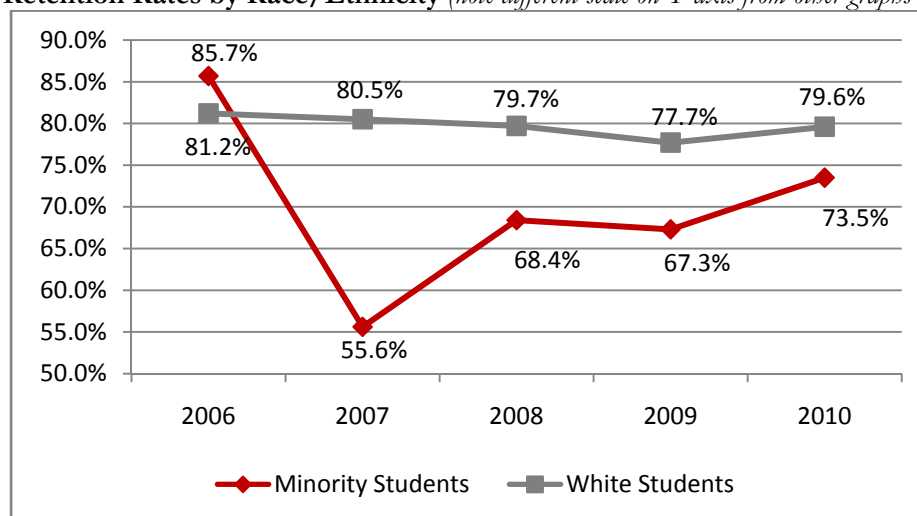
## Race/Ethnicity

Retention rates by race/ethnicity are displayed in Table 5, showing students who are coded as members of racial or ethnic minority groups compared to students who are coded as white. Figure 5 displays the same data graphically. International students and students whose race and ethnicity are unreported are excluded from this analysis. From 2006 through 2009, the number of students with unreported race and ethnicity was about 20 per year. In 2010, when KSC moved to the Common Application, the number of students who chose not to report their race and ethnicity jumped to 158. Readers should be aware of two concerns with the data for racial and ethnic minority students. First, the number of students in any one racial or ethnic minority group is too small for appropriate analysis, so all racial and ethnic minority students are grouped together. While this grouping is statistically and ethically necessary, it obscures important differences in the life experiences and educational outcomes for students in different racial or ethnic minority groups. So even though the scholarly literature might suggest that Hispanic students and black students and Asian students have different collegiate experiences and different challenges at a predominately white institution such as Keene State, this analysis cannot differentiate among them. Second, when all racial or ethnic minority students are grouped together, the total number is large enough for analysis, but only with some caution. As with any percentage analysis of small groups, relatively minor changes in the absolute number of students who are retained can lead to large percentage changes in the retention rate from one cohort to another, so readers should interpret these fluctuations with some caution. With those caveats in mind, the difference in retention rates between racial/ethnic minority students and their white classmates was statistically significant only for the 2007 cohort ( $\chi^2=13.55$ ,  $df=1$ ,  $p=.000$ ).

**Table 5**  
**First-to-Second-Year Retention Rates by Race/Ethnicity**

Cohort Year	White		Racial/Ethnic Minorities	
	Adjusted <i>n</i> in Cohort	% Retained	Adjusted <i>n</i> in Cohort	% Retained
2006	1084	81.2%	35	85.7%
2007	1238	80.5%	36	55.6%
2008	1234	79.7%	38	68.4%
2009	1098	77.7%	55	67.3%
2010	977	79.6%	68	73.5%

**Figure 5. Retention Rates by Race/Ethnicity** (note different scale on Y axis from other graphs in this section)



### *Low-Income Status*

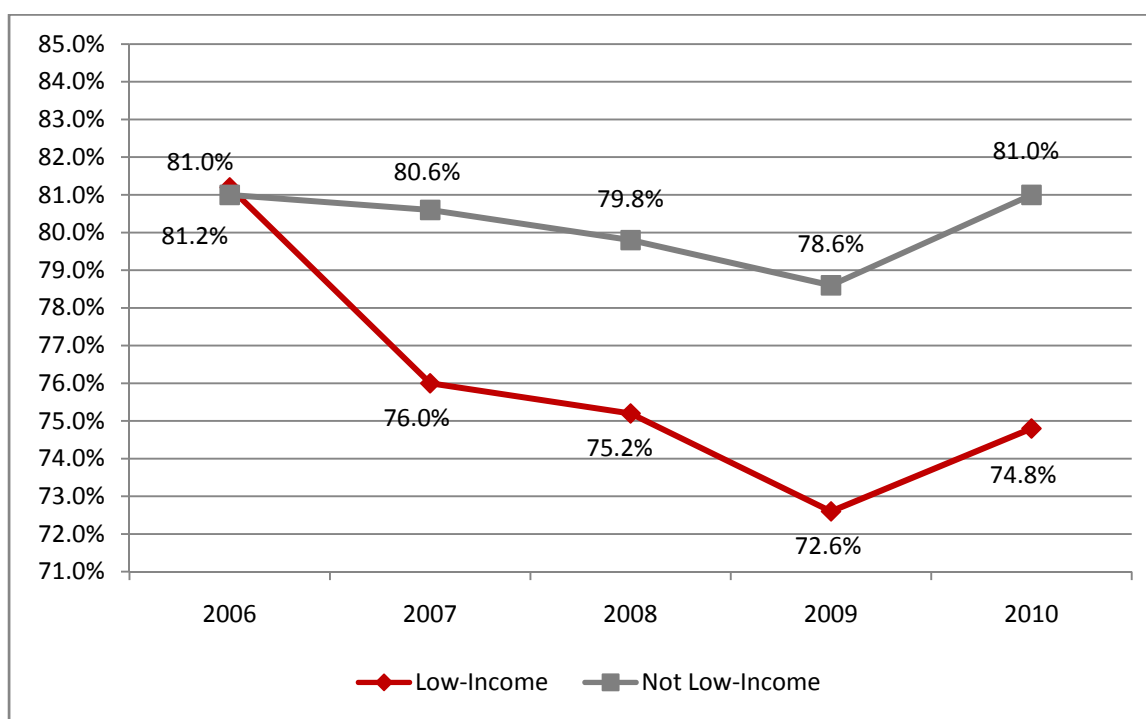
For this study, Pell Grants were used as a proxy for low-income status. Readers should be aware that there are several reasons why a student from a family of moderate or high income might nevertheless be Pell-eligible—there may be multiple children enrolled in college, for example, or the number of business-related expenses may reduce taxable income. Despite these limitations, Pell eligibility is commonly used as a proxy for low-income status in research of this type.

Table 6 below shows the retention rates for low-income students compared to their classmates, and Figure 6 displays these data graphically. During this five-year period, the difference in retention rates between low-income students and their peers was only statistically significant in the 2010 cohort ( $\chi^2=5.49$ ,  $df=1$ ,  $p=.019$ ).

**Table 6**  
**First-to-Second-Year Retention Rates by Low-Income Status**

Cohort Year	Low-Income (Pell Grant Recipients)		Not Low-Income (not Pell Grant Recipients)	
	Adjusted <i>n</i> in Cohort	% Retained	Adjusted <i>n</i> in Cohort	% Retained
2006	165	81.2%	975	81.0%
2007	171	76.0%	1127	80.6%
2008	165	75.2%	1131	79.8%
2009	234	72.6%	942	78.6%
2010	321	74.8%	882	81.0%

**Figure 6. Retention Rates by Low-Income Status**





## PROGRESSION TO SOPHOMORE STATUS

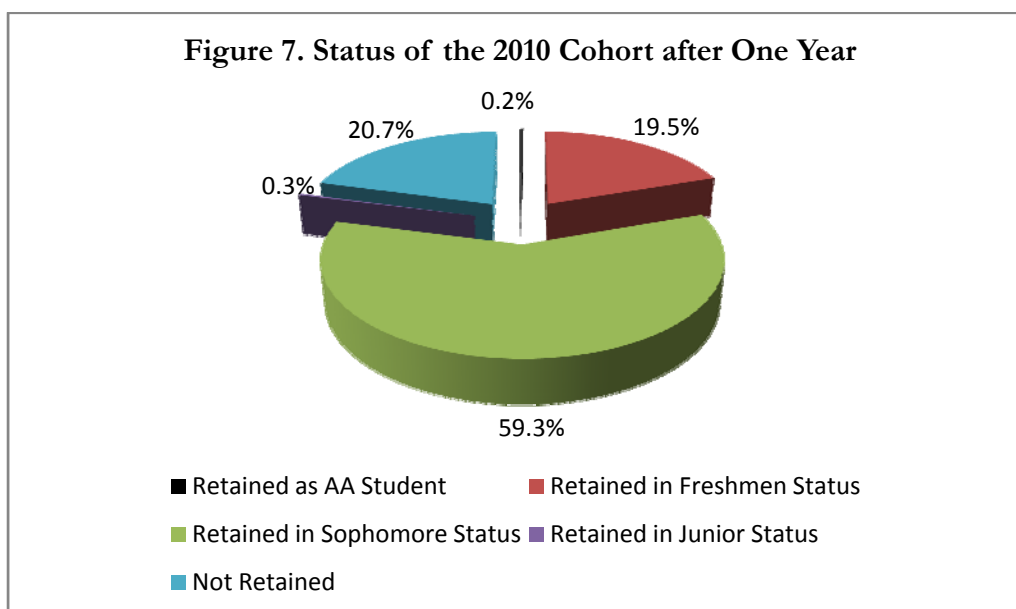
This section expands the retention analysis above to consider the academic level of retained students. Two major national longitudinal studies have found that the number of credits earned in the first year of college is key to eventual graduation. The most recent of these studies, which followed more than 12,000 high school seniors for eight years, found that failure to earn at least 20 credits by the end of the first year of study reduces the likelihood of eventual graduation by a third (Adelman, 2006, p. 48).

### *Overall Progression by Cohort*

Table 7 shows the status of students in each cohort one year after entry. Figure 7 (below) displays the status of the 2010 cohort, which is typical of all cohorts from 2007 through 2010.

**Table 7**  
**Retention and Progression in Academic Status One Year after Entry**

Cohort Year	Adjusted N in Cohort	n (%) Retained	n (%) Retained as AA Student	n (%) Retained as Freshmen	n (%) Retained As Sophomores	n (%) Retained as Juniors
2006	1140	924 (81.1%)	--	335 (29.4%)	586 (51.4%)	3 (0.3%)
2007	1298	1038 (80.0%)	--	274 (21.1%)	764 (58.9%)	--
2008	1296	1027 (79.2%)	--	263 (20.3%)	762 (58.8%)	2 (0.2%)
2009	1176	910 (77.4%)	1 (0.1%)	216 (18.4%)	691 (58.8%)	2 (0.2%)
2010	1203	954 (79.3%)	2 (0.2%)	235 (19.5%)	713 (59.3%)	4 (0.3%)



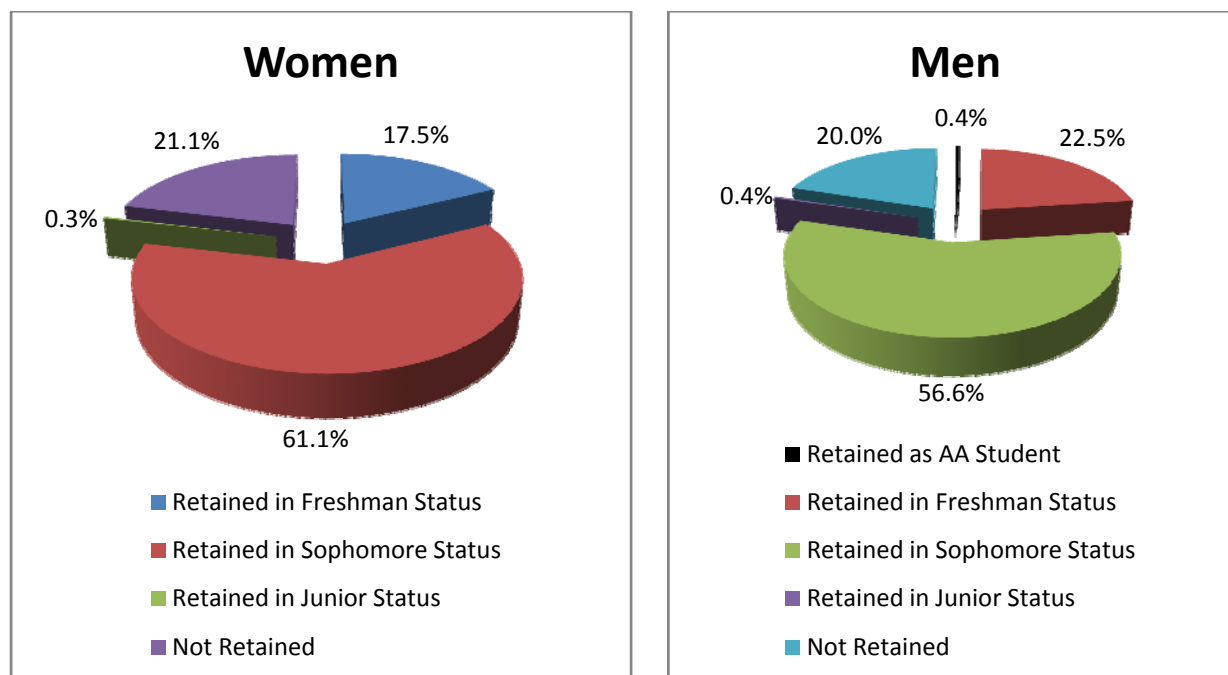
## Gender

Table 8 shows the same data broken down by gender. Figure 8 displays the class status after one year for women and men in the 2010 cohort, which is similar to cohorts from 2007 through 2010. Among students who were retained, women in the 2010 cohort were significantly more likely than men to advance to sophomore status or higher (77.8% of retained women vs. 71.7% of retained men advanced to sophomore status or higher,  $\chi^2=4.57$ ,  $df=1$ ,  $p=.032$ ).

**Table 8**  
**Retention and Progression in Academic Status by Gender**

Cohort Year	Group	Adjusted <i>n</i> in Cohort	<i>n</i> (%) Retained	<i>n</i> (%) Retained as AA Student	<i>n</i> (%) Retained as Freshmen	<i>n</i> (%) Retained as Sophomores	<i>n</i> (%) Retained as Juniors
2006	Women	719	581 (80.8%)	--	193 (26.8%)	387 (53.8%)	1 (0.1%)
	Men	421	343 (81.5%)	--	142 (33.7%)	199 (47.3%)	2 (0.5%)
2007	Women	762	597 (78.3%)	--	128 (16.8%)	469 (61.5%)	--
	Men	536	441 (82.3%)	--	146 (27.2%)	295 (55.0%)	--
2008	Women	778	609 (78.3%)	--	120 (15.4%)	487 (62.6%)	2 (0.3%)
	Men	518	418 (80.7%)	--	143 (27.6%)	275 (53.1%)	--
2009	Women	712	534 (75.0%)	--	95 (13.3%)	439 (61.7%)	--
	Men	464	376 (81.0%)	1 (0.2%)	121 (26.1%)	252 (54.3%)	2 (0.4%)
2010	Women	719	567 (78.9%)	--	126 (17.5%)	439 (61.1%)	2 (0.3%)
	Men	484	387 (80.0%)	2 (0.4%)	109 (22.5%)	274 (56.6%)	2 (0.4%)

**Figure 8. Status of Women and Men in the 2010 Cohort after One Year**



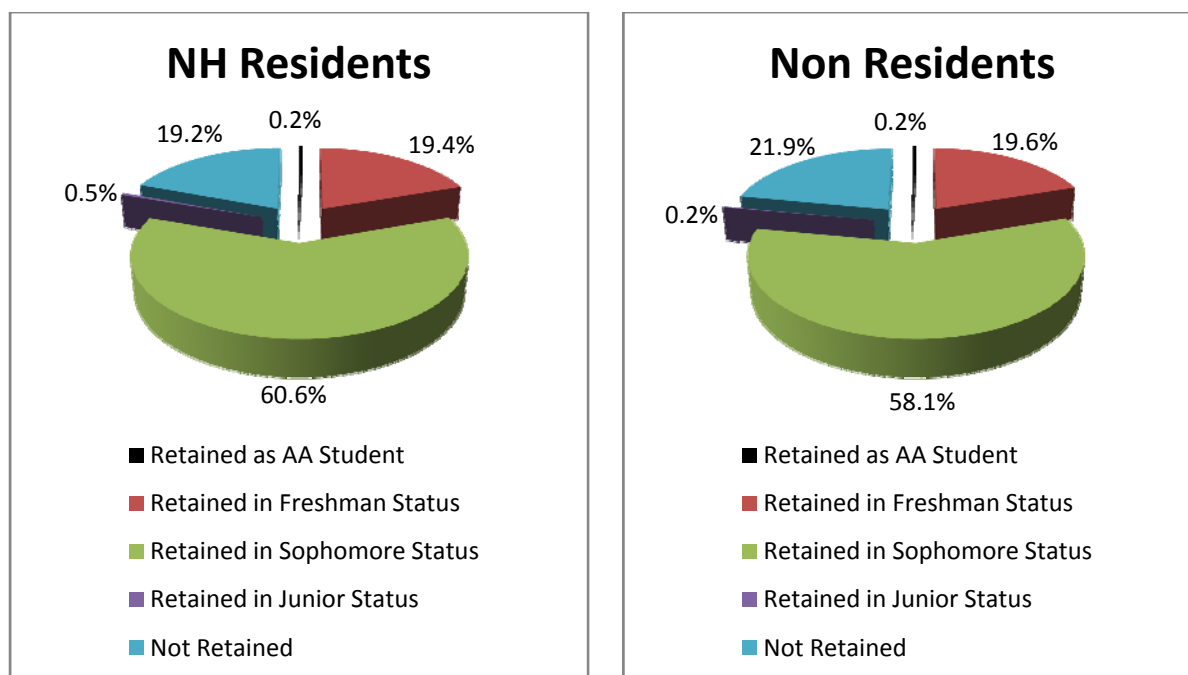
## Residency

Table 9 breaks down retention and progression for New Hampshire residents as compared to non residents for the 2006 through 2010 cohorts. Figure 9 shows the status of these two groups after one year for the 2010 cohort. There is no statistically significant difference in progression to sophomore status or higher for the 2010 cohort, comparing in-state and out-of-state students.

**Table 9**  
**Retention and Progression in Academic Status by Residency**

Cohort Year	Group	Adjusted <i>n</i> in Cohort	<i>n</i> (%) Retained	<i>n</i> (%) Retained as AA Student	<i>n</i> (%) Retained as Freshmen	<i>n</i> (%) Retained as Sophomores	<i>n</i> (%) Retained as Juniors
2006	NH Residents	526	443 (84.2%)	--	150 (28.5%)	292 (55.5%)	1 (0.2%)
	Non Residents	614	481 (78.3%)	--	185 (30.1%)	294 (47.9%)	2 (0.3%)
2007	NH Residents	608	496 (81.6%)	--	126 (20.7%)	370 (60.9%)	--
	Non Residents	690	542 (78.6%)	--	148 (21.4%)	394 (57.1%)	--
2008	NH Residents	582	470 (80.8%)	--	127 (21.8%)	342 (58.8%)	1 (0.2%)
	Non Residents	714	557 (78.0%)	--	136 (19.0%)	420 (58.8%)	1 (0.1%)
2009	NH Residents	527	428 (81.2%)	1 (0.2%)	107 (20.3%)	318 (60.3%)	2 (0.4%)
	Non Residents	649	482 (74.3%)	--	109 (16.8%)	373 (57.5%)	--
2010	NH Residents	546	441 (80.8%)	1 (0.2%)	106 (19.4%)	331 (60.6%)	3 (0.5%)
	Non Residents	657	513 (78.1%)	1 (0.2%)	129 (19.6%)	382 (58.1%)	1 (0.2%)

**Figure 9. Status of New Hampshire Residents and Non Residents in the 2010 Cohort after One Year**



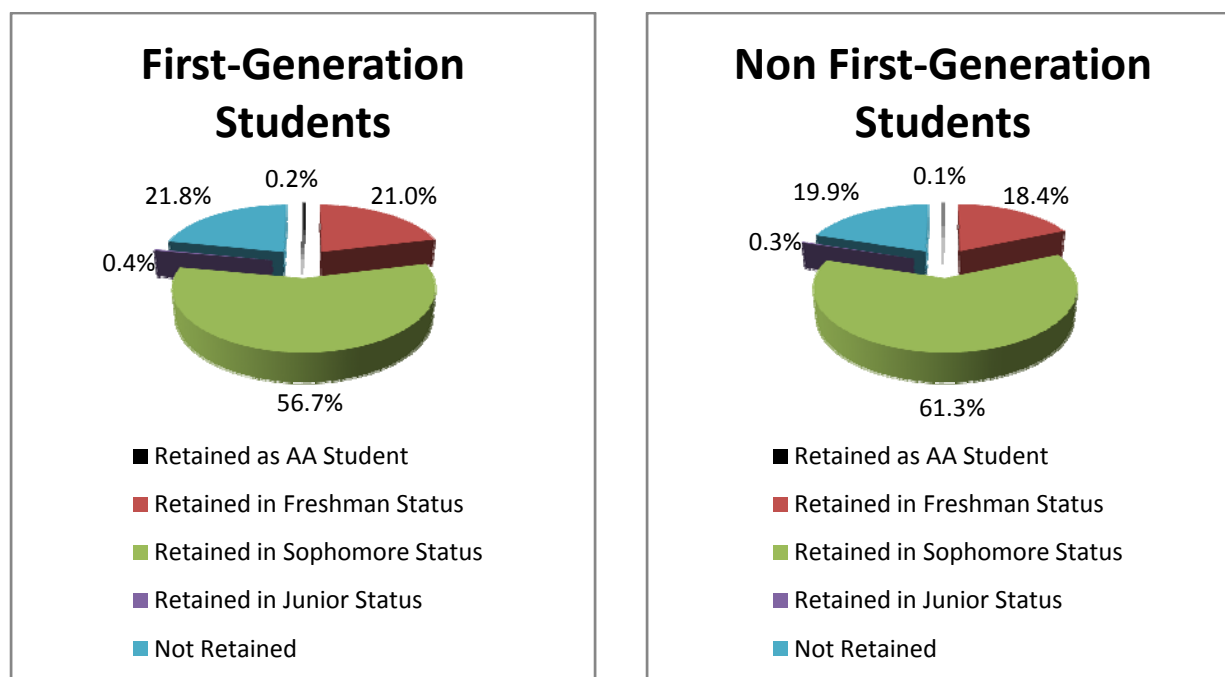
## First-Generation Student Status

Table 10 displays retention and progression in academic status for first-generation college students as compared to students who are not coded as first-generation students. Figure 10 shows the status of the 2010 cohort after one year for these groups. For the 2010 cohort, there is no statistically significant difference in the progression to sophomore status or higher based on first-generation status.

**Table 10**  
**Retention and Progression in Academic Status by First-Generation Student Status**

Cohort Year	Group	Adjusted <i>n</i> in Cohort	<i>n</i> (%) Retained	<i>n</i> (%) Retained as AA Student	<i>n</i> (%) Retained as Freshmen	<i>n</i> (%) Retained as Sophomores	<i>n</i> (%) Retained as Juniors
2006	First-Gen	437	355 (81.2%)	--	134 (30.7%)	221 (50.6%)	--
	Not First-Gen	703	569 (80.9%)	--	201 (28.6%)	365 (51.9%)	3 (0.4%)
2007	First-Gen	493	372 (75.5%)	--	105 (21.3%)	267 (54.2%)	--
	Not First-Gen	805	666 (82.7%)	--	169 (21.0%)	497 (61.7%)	--
2008	First-Gen	502	393 (78.3%)	--	92 (18.3%)	301 (60.0%)	--
	Not First-Gen	794	634 (79.8%)	--	171 (21.5%)	461 (58.1%)	2 (0.3%)
2009	First-Gen	437	320 (73.2%)	--	74 (16.9%)	246 (56.3%)	--
	Not First-Gen	739	590 (79.8%)	1 (0.1%)	142 (19.2%)	445 (60.2%)	2 (0.3%)
2010	First-Gen	524	410 (78.2%)	1 (0.2%)	110 (21.0%)	297 (56.7%)	2 (0.4%)
	Not First-Gen	679	544 (80.1%)	1 (0.1%)	125 (18.4%)	416 (61.3%)	2 (0.3%)

**Figure 10. Status of First-Generation and Non First-Generation Students in the 2010 Cohort after One Year**



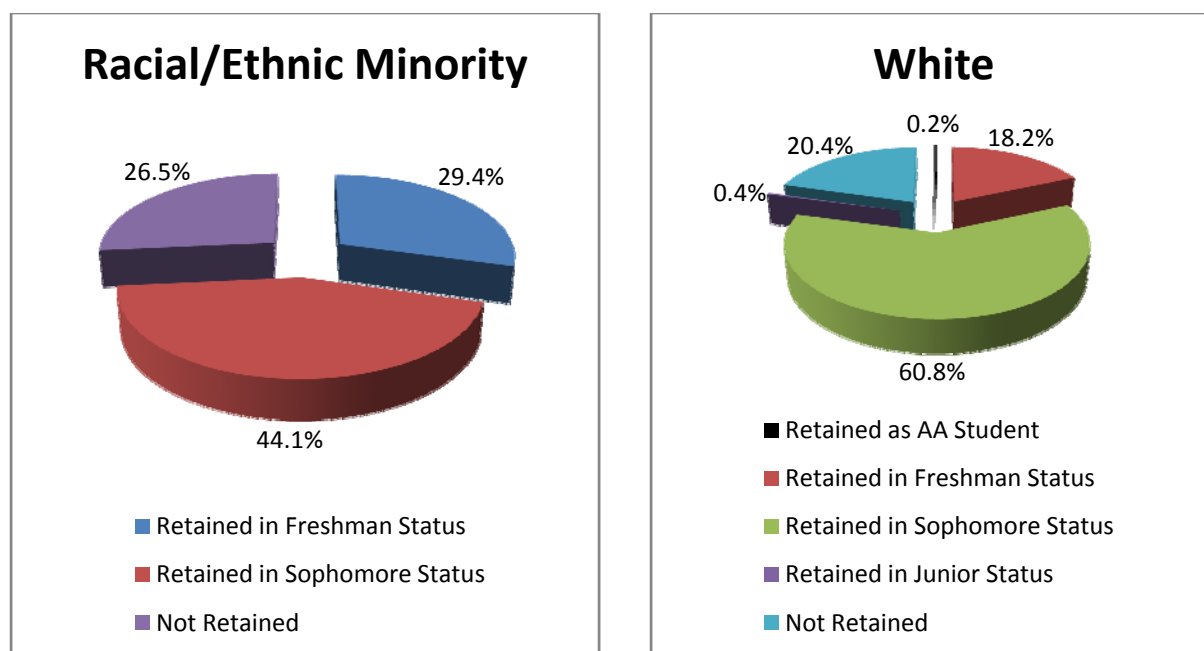
## Race/Ethnicity

Table 11 shows the retention and progression rates for students who are coded as members of racial or ethnic minority groups compared to students who are coded as white. Figure 11 displays the status after one year for these groups in the 2010 cohort. (The cautions noted in the retention section above about small groups and the number of students with unknown race and ethnicity apply to this analysis as well.) Among students in the 2010 cohort who were retained, students from racial and ethnic minorities were significantly less likely than white students to progress to sophomore status or higher (60.0% of retained racial/ethnic minority students advanced to sophomore status or higher, compared to 77.1% of retained students who are coded as white,  $\chi^2=7.50$ ,  $df=1$ ,  $p=.006$ ).

**Table 11**  
**Retention and Progression in Academic Status by Race/Ethnicity**

Cohort Year	Group	Adjusted <i>n</i> in Cohort	<i>n</i> (%) Retained	<i>n</i> (%) Retained as AA Student	<i>n</i> (%) Retained as Freshmen	<i>n</i> (%) Retained as Sophomores	<i>n</i> (%) Retained as Juniors
2006	Minority	35	30 (85.7%)	--	14 (40.0%)	16 (45.7%)	--
	White	1084	880 (81.2%)	--	315 (29.1%)	562 (51.8%)	3 (0.3%)
2007	Minority	36	20 (55.6%)	--	8 (22.2%)	12 (33.3%)	--
	White	1238	997 (80.5%)	--	261 (21.1%)	736 (59.5%)	--
2008	Minority	38	26 (68.4%)	--	6 (15.8%)	20 (52.6%)	--
	White	1234	984 (79.7%)	--	254 (20.6%)	728 (59.0%)	2 (0.2%)
2009	Minority	55	37 (67.3%)	--	15 (27.3%)	22 (40.0%)	--
	White	1098	853 (77.7%)	1 (0.1%)	195 (17.8%)	655 (59.7%)	2 (0.2%)
2010	Minority	68	50 (73.5%)	--	20 (29.4%)	30 (44.1%)	--
	White	977	778 (79.6%)	2 (0.2%)	178 (18.2%)	594 (60.8%)	4 (0.4%)

**Figure 11. Status of Racial/Ethnic Minority Students and White Students in the 2010 Cohort after One Year**



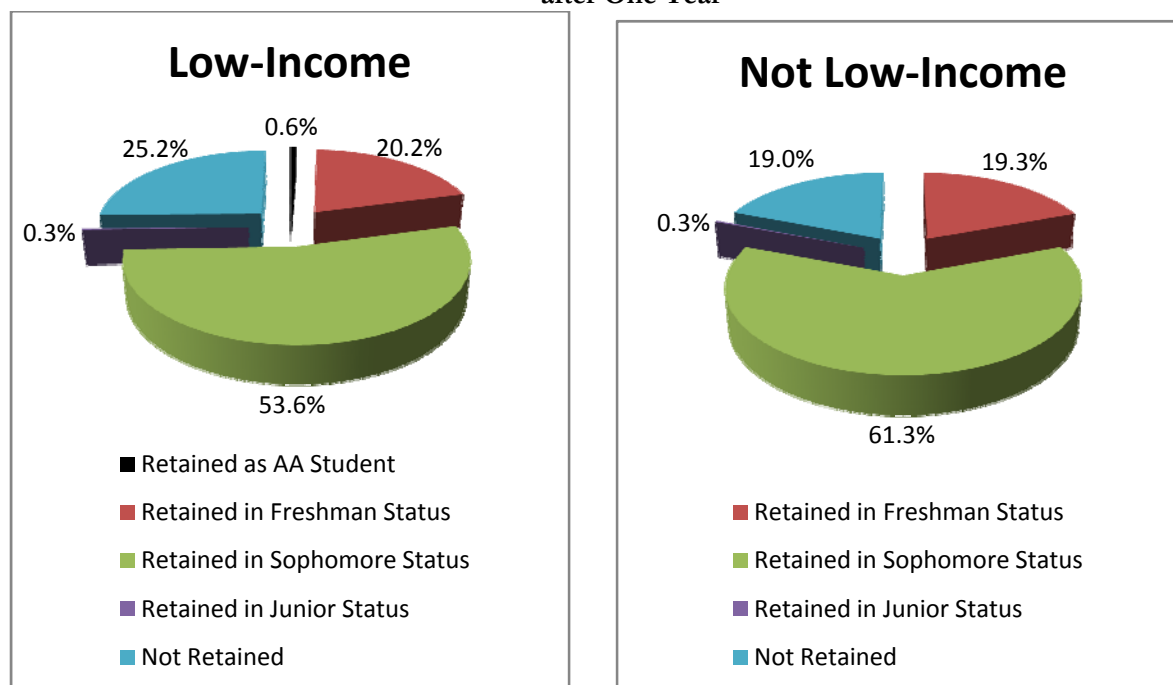
## Low-Income Status

Table 12 displays the retention and progression rates for low-income students (Pell Grant recipients) and non low-income students (not Pell Grant recipients). The same cautions discussed above apply to these data concerning the use of Pell eligibility as a proxy for low-income status. Figure 12 displays the status after one year of enrollment for the 2010 cohort, by income status. Among students in the 2010 cohort who were retained, there is no significant difference in the percentage of students in each group who progressed to sophomore status or higher in year two.

**Table 12**  
**Retention and Progression in Academic Status by Low-Income Status**

Cohort Year	Group	Adjusted <i>n</i> in Cohort	<i>n</i> (%) Retained	<i>n</i> (%) Retained as AA Student	<i>n</i> (%) Retained as Freshmen	<i>n</i> (%) Retained as Sophomores	<i>n</i> (%) Retained as Juniors
2006	Low-Income	165	134 (81.2%)	--	64 (38.8%)	70 (42.4%)	--
	Not L-I	975	790 (81.0%)	--	271 (27.8%)	516 (52.9%)	3 (0.3%)
2007	Low-Income	171	130 (76.0%)	--	40 (23.4%)	90 (52.6%)	--
	Not L-I	1127	908 (80.6%)	--	234 (20.8%)	674 (59.8%)	--
2008	Low-Income	165	124 (75.2%)	--	34 (20.6%)	90 (54.5%)	--
	Not L-I	1131	903 (79.8%)	--	229 (20.2%)	672 (59.4%)	2 (0.2%)
2009	Low-Income	234	170 (72.6%)	--	45 (19.2%)	125 (53.4%)	--
	Not L-I	942	740 (78.6%)	1 (0.1%)	171 (18.2%)	566 (60.1%)	2 (0.2%)
2010	Low-Income	321	240 (74.8%)	2 (0.6%)	65 (20.2%)	172 (53.6%)	1 (0.3%)
	Not L-I	882	714 (81.0%)	--	170 (19.3%)	541 (61.3%)	3 (0.3%)

**Figure 12. Status of Low-Income Students and Non Low-Income Students in the 2010 Cohort after One Year**



## REFERENCES

- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, D.C.: U.S. Department of Education.
- DeAngelo, L., Frank, R., Hurtado, S., Pryor, J. H., & Tran, S. (2011). *Completing college: Assessing graduation rates at four-year institutions*. Los Angeles: Higher Education Research Institute, UCLA.
- Higher Education Research Institute. (2011, January). *The American freshman: National norms fall 2010*. HERI Research Brief. Author. Available at:  
[http://www.heri.ucla.edu/PDFs/pubs/briefs/HERI\\_ResearchBrief\\_Norms2010.pdf](http://www.heri.ucla.edu/PDFs/pubs/briefs/HERI_ResearchBrief_Norms2010.pdf)
- Pryor, J. (2011, January). *The changing first-year student: Challenges for 2011*. Presentation to the American Association of Colleges and Universities Annual Meeting, San Francisco, CA. Available at:  
<http://www.heri.ucla.edu/PP/Understanding%20the%20Incoming%20Freshman-AAC&U%202010.pdf>