

# Undergraduate Research Experiences and Student Retention: The Role of Multidisciplinary Fellowships at Arizona State University New College

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## Introduction

The New College Undergraduate Inquiry and Research Experiences (NCUIRE) program facilitates research partnerships between faculty and undergraduates at ASU West. Students work with faculty mentors for a semester or one academic year on original research projects. Many participants receive small stipends while in NCUIRE but some students prefer academic credits instead.

Participation in formalized undergraduate research experiences often enhances academic performance and retention (Locks and Gregerman, 2008; Kuh, 2008). Retention increases because undergraduate research programs: 1) set high standards of student effort; 2) augment skills and attitudes that translate into academic excellence; and 3) provide academic-financial support systems (Tinto, 2010). Most undergraduate research programs serve the most academically achieving students in one academic discipline. NCUIRE is a novel in that it accepts applicants from any discipline and there is no GPA criteria to receive a NCUIRE grant (the student has to convince a ASU professor that they are worthy of a research opportunity and get formally accepted into the program).

This study addresses if such an inclusive approach improves retention for student from different academic backgrounds. To do so, this study initially compares retention patterns for NCUIRE and Non NCUIRE students who enrolled at ASU as freshmen. Next the study analyzes the effects of undergraduate research for students from different backgrounds (academic success in high school).

## Sample

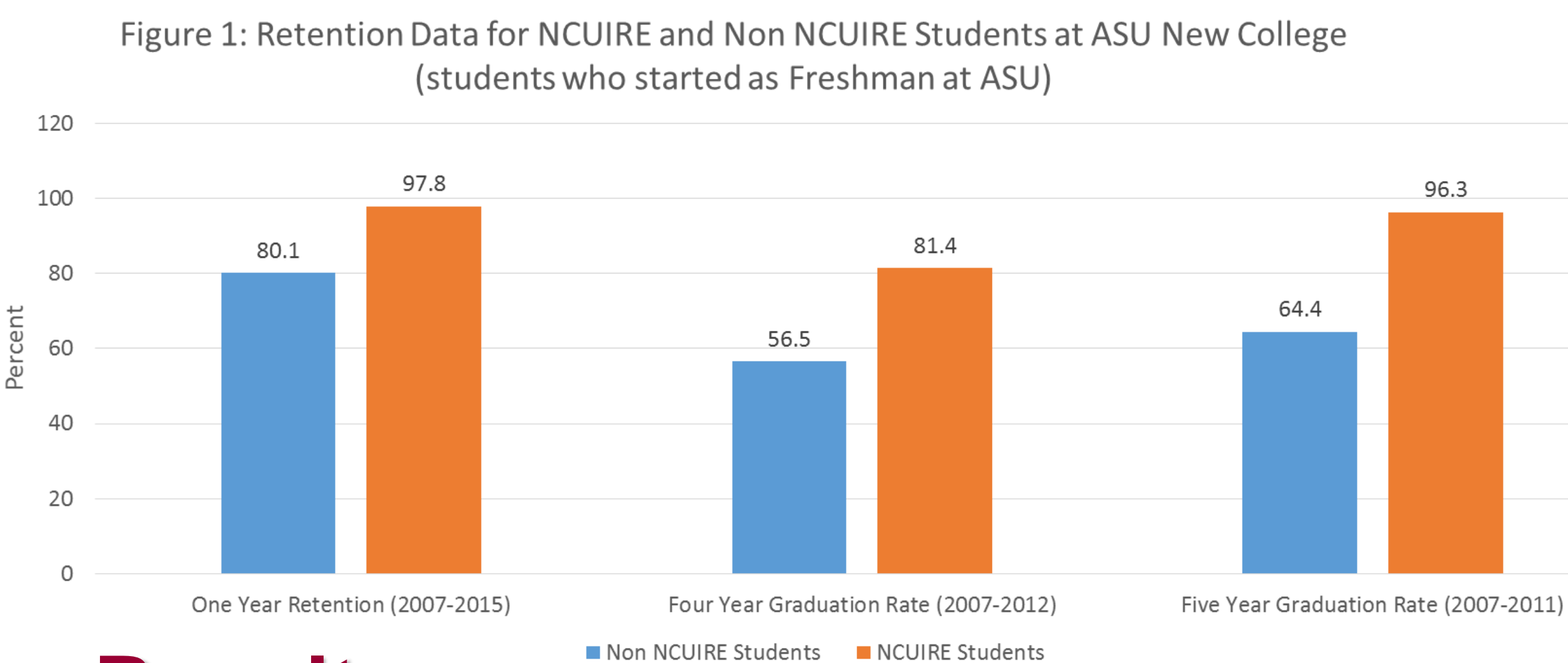
NCUIRE is housed at the New College at ASU West. ASU West is one the four major campuses that make the Arizona State University system. The campus with roughly 3,300 students mostly concentrates on undergraduate education in the social sciences, natural sciences, and humanities. Class sizes are relatively small and racial diversity is relatively high as 52% of the student populace is Euro-American, 27% % is Latino(a), 5.4% is Asian or Afro American, and 3% is Native American.

NCUIRE has existed since 2007. The analysis compares the retention trends for the 190 NCUIRE students with all of the other New College students from 2007 to 2015 (data supplied by ASU enrollment offices). The sample is restricted to students who enrolled as college Freshman.

## Measures

Student Persistence was traced through three indicators: *One Year Retention* address the continued enrollment at ASU in an annual increment (full or part time status). *Four Year* and *Five Year Graduation Rates* deals with the completion of bachelors degrees for incoming freshman students for different time intervals.

Academic Background: *The Colorado Index Score* (CIS) is a composite scale that is often used in admission decisions for high school graduates who are applying to college. The scales encompasses factors such as High School GPA, Standardized test scores (SAT or ACT), academic rigor of completed high school classes, and extracurricular activities. Colorado Index scores range from 80 to 149 and we created four ordinal categories (low=93 or less, medium low=94 to 110, medium high= 111 to 120, high= 121 or more).



## Results

Student persistence is much higher among NCUIRE students. When comparing single year figures, NCUIRE students return to college at an almost universal rate while four out of five New College students follow this tendency. Likewise, NCUIRE students graduate with much higher rates than students who did not participate in the program. Between 96 and 81 percent of NCUIRE students who enrolled as Freshmen graduate within four or five years. In contrast 56 to 64 percent of non NCUIRE students graduate within that time frame.

Table 1: Student Retention by NCUIRE Participation and Color Index for College Preparation

	One-Year Retention (2007-2015)		Four Year Graduation (2007-2012)		Five Year Graduation	
	NCUIRE	No NCURE	NCUIRE	No NCUIRE	NCUIRE	No NCUIRE
Colorado Index						
Low (93 or Less)	88%	65%	60%	27%	60%	36%
Medium Low (94 to 110)	100%	76%	76%	38%	100%	51%
Medium High (111 to 120)	100%	91%	59%	51%	100%	69%
High (121 or more)	98%	92%	85%	65%	95%	78%

## Results

NCUIRE benefits students regardless of their pre-collegiate academic experiences. For students in the same CIS cluster, NCUIRE retention rates were always higher. For example, the one year retention rate is almost perfect for NCUIRE students with low or medium low CIS scores but the retention rate of non NCUIRE students with equivalent CIS scores ranged from 65 to 92 percent.

NCUIRE also had it biggest impact among students who did not excel in high school. Four year graduation rates were over 35% higher for NCUIRE students who came in lower CIS scores and the gap is even larger for five year graduation rates. Remarkably the NCUIRE students who came in with low CIS scores graduated in four years at pace that almost matched the non NCUIRE students who came in with the highest CIS (60% compared to 65%).

## Conclusion

Undergraduate research opportunities improves retention for all college students. Overall retention rates is dramatically higher among student who partook in the NCUIRE program at ASU West. Moreover, students from all academic backgrounds benefitted from undergraduate research opportunities (similar to Salinitri, 2005; Locks and Gregerman, 2008). In fact, NCUIRE students who entered with lower CIS scores as freshman had almost the same graduation rates as non NCUIRE students who came in with the highest CIS scores. This suggests that NCUIRE administrators and educational planners elsewhere should make voluntary research opportunities as available as possible to students from all circumstances.

## References

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