

NC Teaching & Learning Hubs

Statewide Professional Learning for Faculty and Student Success

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DVP-PRAXIS



**Achieving
the Dream** 

INTRODUCTION

The North Carolina Teaching and Learning Hubs were established to support student success by investing in faculty professional learning. By design, the Hubs are a scaled approach, accessible to all faculty across the state to share classroom management techniques and teaching practices that are evidence-based and quickly adoptable. Faculty engage in self-reflection about their teaching practices and are supported to make changes in their classrooms that improve student experiences and outcomes.ⁱ

The backbone support for the Hub strategy is a collaboration between Achieving the Dream who provides guidance around Hub-offered content, the North Carolina Student Success Center who is organizationally situated in the state system office to support institutional transformation, and the Belk Center for Community College Leadership and Research who work with college leadership to ensure their support and buy-in. In addition, there are four regional Hubs led by faculty Co-Directors located at two host colleges in each region that serve a group of affiliated and regionally aligned colleges. Regional alignment enables Co-Directors to assess the needs of faculty and provide tailored content to support those needs and to evolve their support over time. Co-Directors also draw from and cultivate content from peer faculty within the region, which further ensures the content is relevant and actionable.

The Hub strategy for student success is straightforward: to invest in faculty professional learning and reach students where they spend most of their time at the college – in the classroom. Professional learning content is offered free of cost to participants and Hub operating costs are modest, including a subscription for CVENT’s registration software (\$40,000 annually), Co-Director release time (the cost is shared by host colleges), and honorariums for presenters and related event expenses (\$20,000 annually). Most of the investment is in-kind – namely, faculty time spent cultivating and delivering professional learning content. The connection with student success is clear: every faculty trained by a Hub means more students benefitting from faculty professional learning. Prior estimates suggest each additional faculty member trained by a Hub reaches an average of 151 additional students. During the first two years of operations, more than 74,000 students enrolled in courses taught by faculty who participated in Hub professional learning. This report focuses on the academic outcome of student persistence, which includes fall-to-spring retention, transfer in the subsequent term, and credential attainment in the current term during the Teaching and Learning Hubs’ first two-years of operation (2021-22 and 2022-23).ⁱⁱ

KEY TAKEAWAYS FROM THIS REPORT



We predict a **6.6% increased likelihood of fall-to-spring persistence** for each student when they take an additional course with Hub-trained faculty.



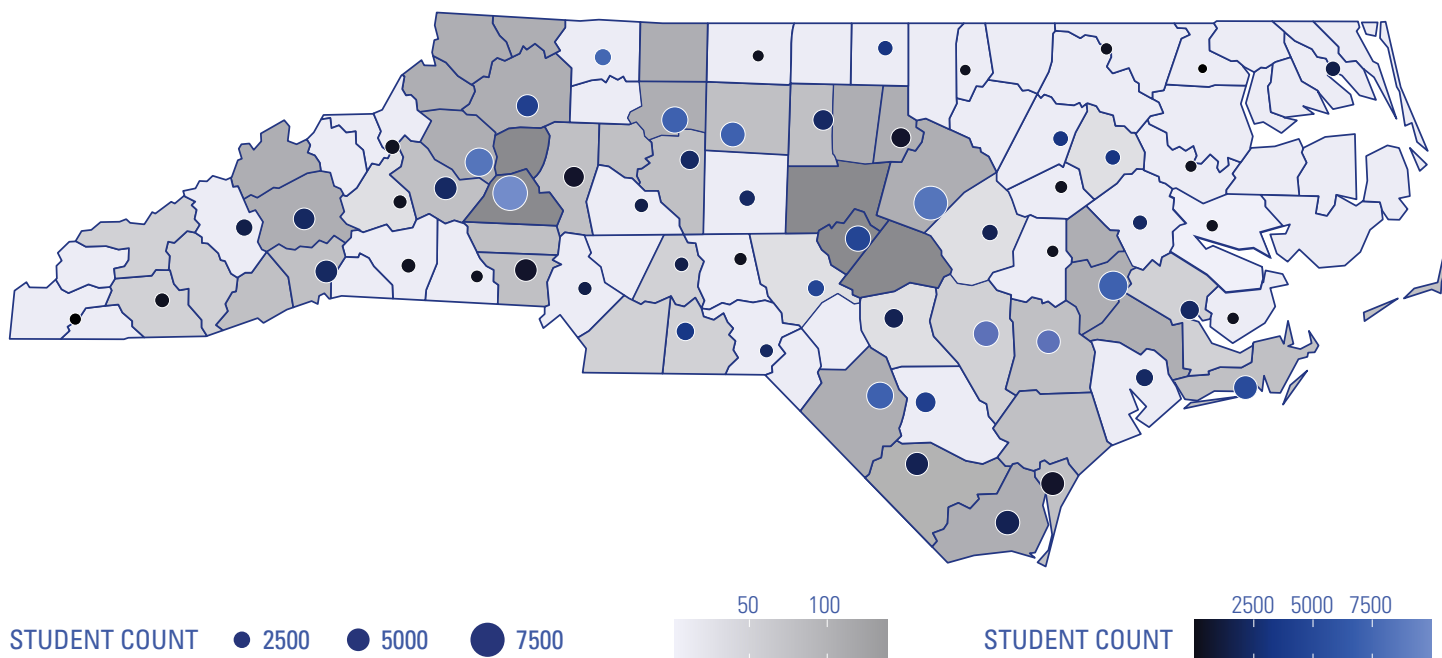
If all NCCCS students enrolled in **1 additional course taught by Hub-trained faculty, we predict an additional 4,154 students would be retained, transfer, or receive a credential each term.**

SCALED REACH OF THE HUBS

Over 74,000 students across the state have interacted with faculty attending professional learning sessions from the Teaching and Learning Hubs between Fall 2021 and Spring 2023, and this number is growing as the Hubs continue to serve more faculty. While there is variation in how many faculty are attending Hub professional learning sessions by college and region, and how many students benefit from that participation, as of Spring 2023, every college has at least one faculty who attended sessions and therefore has students benefiting from faculty professional learning (Figure 1).

NUMBER OF STUDENTS TAUGHT BY HUB-TRAINED FACULTY BY COLLEGE

Figure 1



Note: 2021-22 through 2022-23 by college Min: 26; Max: 9139; Median 1,040; Mean: 1,675; 682 students who attended multiple colleges are not shown

STUDENT ACADEMIC SUCCESS

In the report “Evidence of Scale for a Statewide Teaching and Learning Model”, we identified a relationship between course pass rates and Hub attendance for faculty at North Carolina Community Colleges.ⁱⁱⁱ Course pass rates for faculty were evaluated prior to their attendance at Hub sessions, in their first semester they attended Hub sessions, and in subsequent semesters. Results from a within-faculty regression analysis indicated that course pass rates for faculty concurrently attending

their first session at a Teaching and Learning Hub averaged 2 percentage points higher compared to their course pass rates before attending. This course-level relationship indicates a benefit of Hub-offered training for students but does not directly examine it. Therefore, the goal of this report is to identify the relationship between student-level outcomes and exposure to faculty who participated in Teaching and Learning Hub professional learning.

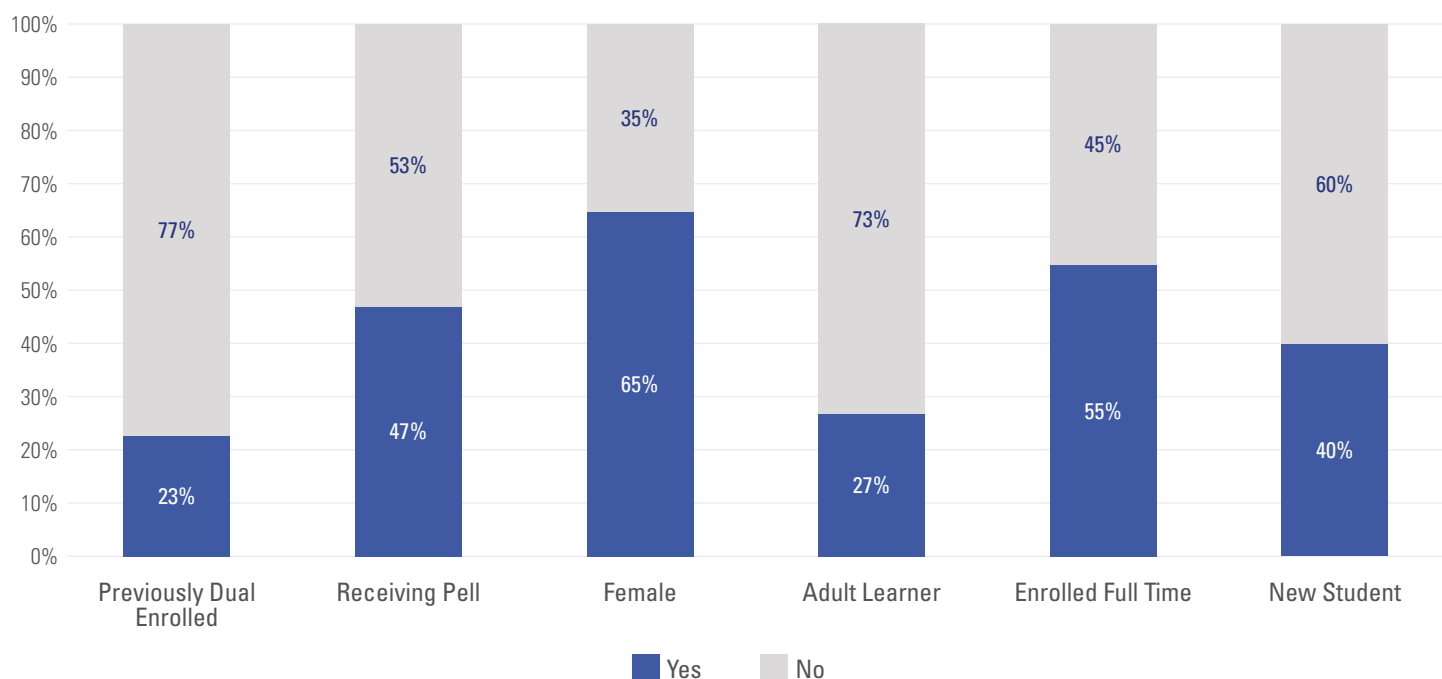
STUDY SAMPLE

Students in our sample represent those who took a course with a faculty member who participated in a Hub-offered professional learning session. To create this sample, we first limited our course list to the first semester in which faculty attended Hub sessions and any subsequent semesters they participated. For simplicity, we further limited the student sample to the first Fall term students took a course with a Hub-trained faculty member (either Fall 2021 or Fall 2022). We also limited the sample to students who were not currently dual enrolled as they are a demographically distinct group; our sample includes students who were previously dual enrolled. These decisions resulted in a sample of 21,370 students who first took a course from Hub-trained faculty in Fall 2021 (n=4,179) and Fall 2022 (n=17,191). These students were first “impacted” by the Hubs through courses they took with Hub-trained faculty during Fall 2021 or Fall 2022. The sample is larger in Fall 2022 because more faculty were trained by Fall 2022, meaning there were more courses taught and therefore more students eligible for the study sample.

Among these 21,370 impacted students, 23% (n=4,814) are previously dual enrolled students, 27% (n=5,733) are adult learners aged 25+, 55% (n=11,784) are enrolled full-time (12+ credits this term), and 47% (n=10,118) received the Pell grant during the fall term (See Figure 2). Additionally, 65% (n=13,825) of students identified as female, and while the majority of students identified as white (54%, n=11,580), 19% (n=4,105) of students were Black, 15% (n=3,166) were Hispanic, 4% (n=758) identified multiple races, 3% were Native American/Alaskan Native (n=626) or Asian (n=609), and <1% (n=27) were Hawaiian/Pacific Islander. In other words, almost half the study sample are students of color. Sample students were enrolled in an average of 11 credits and had, on average, previously earned 18 credits. In other words, 40% (n=8,535) were first-time students and 60% (n=12,835) were returning students.

DEMOGRAPHICS OF IMPACTED STUDENTS FALL 2021 AND FALL 2022 (N=21,370)

Figure 2



RACE/ETHNICITY OF IMPACTED STUDENTS FALL 2021 AND FALL 2022 (N=21,370)

Table 1

ETHNICITY	Number	Percent
White	11,580	54%
Black	4,105	19%
Hispanic	3,166	15%
Multiple	758	4%
Native American / Alaskan Native	626	3%
Asian	609	3%
Hawaiian / Pacific Islander	27	< 1%
Unkown	499	2%

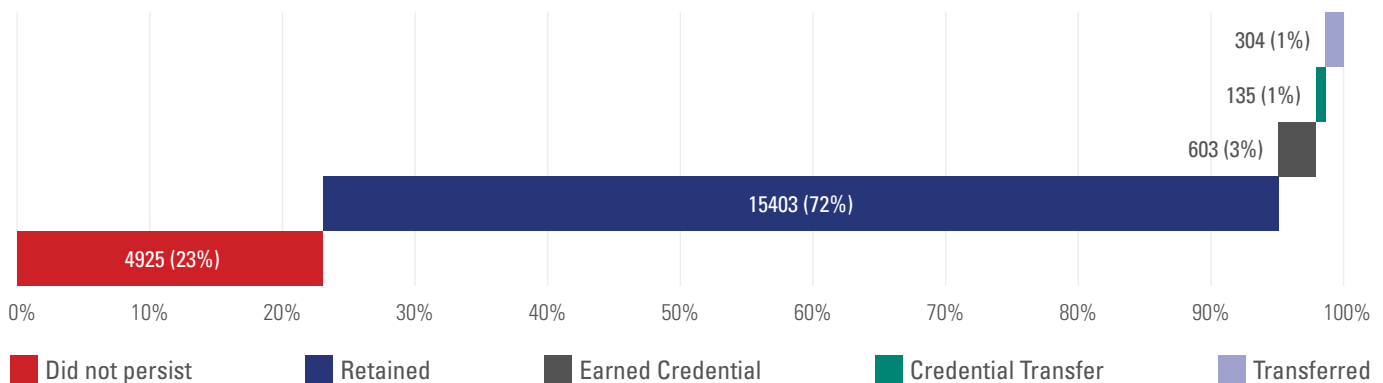
ANALYTICAL APPROACH

To understand the relationship between the number of courses students took with trained faculty and fall-to-spring persistence, we constructed a model that included the number of courses students enrolled with Hub-trained faculty and statistically controlled for the student's college, the enrollment term, enrollment intensity (the sum of credit hours in which a student was currently enrolled), prior credits earned by the student, race/ethnicity of student, gender of student, receipt of Pell in the current term, and status as an adult student.

This model was used to estimate the relationship between the number of courses students took with Hub-trained faculty and a student's likelihood of persistence, which is defined as subsequent enrollment in a spring term following the fall impact term, transfer to another institution in a spring term following the fall impact term or earning a credential in the fall impact term. In Fall 2021 and Fall 2022, 16,445 (77%) of students persisted, including 15,403 who were retained in the subsequent spring, 603 who earned a credential, 304 who transferred, and 135 who transferred and earned a credential.

HUB-IMPACTED STUDENTS WHO PERSISTED BY OUTCOME (RETENTION, COMPLETION, TRANSFER)

Figure 3



Simply put, the model uses the student factors listed above and calculates the likelihood of persistence (outcome of retention, transfer, or completion) for an individual based on these categories; that is, we identify the likelihood of improved persistence as the number of courses students took with Hub-trained faculty increases.

FINDINGS

Our modeling predicts that for each additional course a student took that was taught by a T&L Hub trained faculty member there is an associated increase in their individual likelihood of persistence of 6.6%.

For example, if a given student has a 50% likelihood of persisting due to the other predictive factors (i.e., demographic information, enrollment intensity, term, college, and progress to degree), a 6.6% increase in the odds of persistence means that same student would have 3.3 percentage point increase in the likelihood of persisting if an additional course they took was taught by Hub-trained faculty (i.e., $6\% \times 50\% = 3.3$ percentage points). That is, their predicted persistence rate would be 53.3%.

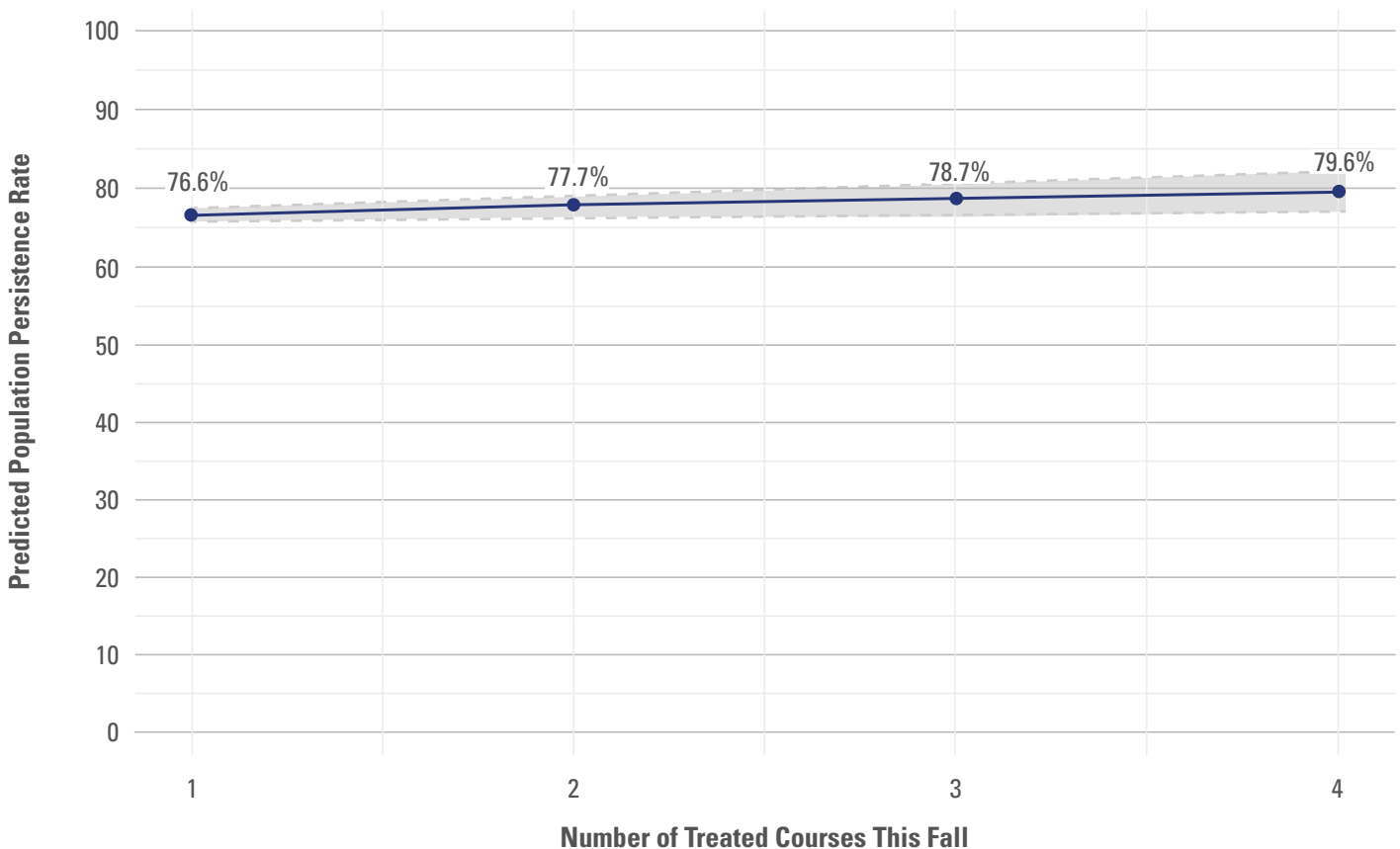
As sensitivity tests, we also constructed models with interactions for certain demographic characteristics to see if the trend in the overall student sample is the same across different groups of students.^{iv} These interaction models showed that the pattern (more treated courses yields increased persistence) was similar for both male and female students. The

sensitivity modeling also revealed that the trend was positive and statistically significant for white students and black students; and while also positive for Hispanic students, students who identify as multiple races/ethnicities, and students who received the Pell Grant, the estimates were not statistically significant. We also included an interaction for each fall term that showed a consistent and significant positive trend for students in both the Fall 2021 and Fall 2022 terms.

We then used the overall model estimate to calculate the potential increase in persistence for the NCCCS student population. Using model outputs, we generated a predicted population persistence rate for students taking different numbers of courses from Hub-trained faculty, and used these estimates to predict the expected increase for statewide persistence rates based on the number of courses students took with Hub-trained faculty (See Figure 3). The results suggest that each additional course students take from Hub-trained faculty would increase the statewide persistence rate by approximately 1.1%.

PREDICTED POPULATION PERSISTENCE RATE BY NUMBER OF FALL COURSES STUDENTS TAKE FROM HUB-TRAINED FACULTY

Figure 3



To translate this model into practical terms, we accessed the NCCCS data dashboard that shows 377,588 students enrolled in NC Community Colleges in Fall 2022. At the predicted persistence rate in our model of 76.6% (1 treated course), 289,232 students would persist. If every student took one additional course with a Hub-trained faculty, the system-wide persistence rates would increase to 77.7%, meaning that 293,386 students would persist, an increase of 4,154 students statewide. Additionally, this effect is predicted to be cumulative. If all students had three courses taught by Hub-trained faculty, the model predicts a persistence rate of 78.7%, which translates to an additional 7,930 students.

Put simply, for each additional course students take with Hub-trained faculty, our model predicts a cumulative increase in the statewide persistence rate.

Of note, this model was constructed using data on students who took at least one course from Hub-trained faculty. Thus, our model and sampling process means we cannot directly evaluate the benefit of students with courses taught by Hub-trained faculty compared to students without courses taught by Hub-trained faculty. Examining this question would require additional data on students who did not take any courses with Hub-trained faculty.

SIGNIFICANCE AND IMPLICATIONS

This study covering the first two years of North Carolina Teaching and Learning Hubs strongly suggests there is a positive and significant benefit to persistence for students when they increase their “dosage” of courses taught by Hub-trained faculty. More faculty engaging with the Hubs means more treated courses and therefore more treated students, which is associated with improved persistence.

The overall evaluation of Teaching and Learning Hubs suggests that faculty participation in Hub-offered sessions appears to result in changes to classroom practices, and these practices are related to improved student persistence. Faculty are responsive to the Hub offerings with attendance growing substantially year over year, and their motivation to participate appears to be driven by their commitment to support student success.

The Hubs operate with moderate financial investment to provide opportunities for professional learning statewide at scale. The Teaching and Learning Hub approach is particularly important for institutions that don’t have the capacity or financial means to provide evidence-based professional learning opportunities by themselves, especially small and rural colleges. Given the scale of the Hubs’ reach to faculty, which is increasing as the Hubs continue to attract more faculty, this investment in professional learning for faculty could have significant institutional and statewide impacts on postsecondary success.^v

ENDNOTES

- i. Deal, S.A. & Price, D.V. (2023). Promising Evidence on Professional Learning in North Carolina: Early Findings from Teaching and Learning Hubs. DVP-PRAXIS LTD. Indianapolis, IN.
- ii. For additional information on growth of the Hubs see: Lubera, A., Deal, S.A., & Price, D.V. (2023). Evidence of Scale for a Statewide Teaching and Learning Model. DVP-PRAXIS LTD. Indianapolis, IN.
- iii. Ibid.
- iv. These models are not shown.
- v. Lubera, A., Deal, S.A., & Price, D.V. (2023) and Deal, S.A. & Price, D.V. (2023).

ACKNOWLEDGEMENTS

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APPENDIX

REGRESSION MODEL FOR PERSISTENCE

Table A1

Logistic Regression: Persistence_OneTerm ~ ~ NumberCoursesTaughtByTreatedFaculty + Term + CreditHoursAttemptedThisTerm + Dual_Enroll_Group + Gender + RaceEth + PellThisTerm + AdultStudent + PriorCreditsEarned + College

PREDICTORS	<i>OR (Std. Err.) [Conf.low Conf.high] p-value</i>
Number of treated courses a student enrolled in Fall	1.066 (0.031) [1.007 1.128] 0.029 *
Term = Fall 2022	0.915 (0.048) [0.826 1.014] 0.090
Credit Hours Attempted This Term	1.146 (0.006) [1.135 1.157] 0.000 **
Previously Dual Enrolled	1.276 (0.061) [1.163 1.401] 0.000 **
Female	0.952 (0.035) [0.885 1.025] 0.191
RaceEth = Unknown	1.051 (0.127) [0.829 1.333] 0.682
RaceEth = Asian	1.137 (0.130) [0.908 1.423] 0.262
RaceEth = Hawaiian/Pac.Isl.	0.436 (0.185) [0.189 1.004] 0.051
RaceEth = Nat.Amer./Al.Nat.	0.826 (0.093) [0.663 1.030] 0.089
RaceEth = Black	0.632 (0.029) [0.577 0.692] 0.000 **
RaceEth = Multiple	0.779 (0.071) [0.652 0.931] 0.006 **
RaceEth = Hispanic	0.944 (0.050) [0.852 1.047] 0.275
PellThisTerm	1.116 (0.041) [1.039 1.199] 0.003 **
AdultStudent	1.038 (0.043) [0.958 1.125] 0.363
Prior Credits Earned at any Institution	1.012 (0.001) [1.010 1.013] 0.000 **
college name ¹ (n = 53)	
Intercept	0.969 (0.205) [0.640 1.467] 0.883
N	21369

Note: * $p < .05$, ** $p < .01$

1. College was included as a fixed effect but is not reported here.

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