Student Success in Action: ACUE-Certified Faculty Drive Completion, Improved Grades, and Substantial Drop in Ds, Fs, and Withdrawals at Florida Atlantic University

Technical Report

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ACUE

Executive Summary

This evaluation examines the impact of faculty certification through ACUE's Pathway courses on student outcomes at Florida Atlantic University (FAU). Using a Difference-in-Differences (DID) design, the study analyzes student performance across three time periods (before, during, and after faculty certification) and compares outcomes in course sections taught by ACUE-certified instructors to sections taught by non-certified instructors. The analysis focuses on four key student outcomes: course completion, passing rates, rates of students earning D or F grades or withdrawing (DFW), and final course grades.

Methods

To ensure comparability between groups, Coarsened Exact Matching (CEM) was used to match course sections based on similar characteristics. The matched dataset includes over 321,525 non-unique student enrollments from 8,076 course sections taught between fall 2020 and fall 2024. Linear Probability Models with instructor fixed effects were used to estimate the impact of ACUE certification while controlling for student demographics, instructor characteristics, and course characteristics.

Key Findings

- **Improved Completion Rates:** Completion rates improved significantly more for students taught by ACUE faculty during (b = 0.009, p = .006) and after (b = 0.010, p = .005) certification relative to students in comparison sections.
- **Reduced DFW Rates:** In the post-certification period, DFW rates declined 38.7% from baseline levels among course sections taught by ACUE faculty, which was significantly greater (b = -0.02, p = .017) than the decrease among comparison sections.
- **Higher Average Grades:** Average grades increased significantly more among students of ACUE faculty during (p = .026) and after certification (p = .024), with average grade increases of 0.09 points on a 4.0 scale.
- **Subgroup Benefits:** Hispanic/Latino students showed significantly greater improvements in course completion during the certification period (b = 0.009, p = .040). Students in general education courses also saw especially strong gains in both completion (b = 0.02, p = .004) and average grades (b = 0.23, p = .002) during this period.

Conclusions

The results of this evaluation indicate that participation in ACUE Pathway courses and subsequent certification led to meaningful improvements in indicators of student success at FAU. Importantly, these gains were observed even though instructors followed the flexible four-course pathway, highlighting the value of engaging with ACUE course content regardless of timing. These findings reinforce the effectiveness of ACUE certification in enhancing instructional quality and advancing academic outcomes for all students, especially those in foundational course settings.

About ACUE

The Association of College and University Educators (ACUE) is dedicated to student success through high-quality instruction. In partnership with higher education institutions, we offer the only nationally recognized Effective Teaching certification, endorsed by the American Council on Education (ACE), supported by a vibrant online community of practice focused on advancing teaching excellence.

ACUE-certified faculty deliver exceptional teaching in every class, resulting in higher student engagement, improved achievement, and stronger retention—outcomes that enhance institutional impact and support long-term student success. Learn more at acue.org.

Introduction

Instructional quality plays a central role in shaping student success in higher education. A growing body of research demonstrates that not only enhances student learning and engagement but also leads to meaningful improvements in academic achievement and persistence (Braga et al., 2016; Brodaty & Gurgand, 2016; Carrell & West, 2010; De Vlieger et al., 2017). As institutions face increasing pressure to improve student outcomes, investing in professional development for faculty has emerged as a key strategy to promote better academic environments and foster student success (Freeman et al., 2014).

The Association of College and University Educators (ACUE) supports this effort by offering structured, evidence-based professional development courses and certifications designed to help faculty implement effective and impactful teaching practices. ACUE's Effective Teaching Framework (2016) outlines core instructional strategies that are applicable across disciplines and have been shown to enhance student performance, persistence, and engagement. To evaluate the effectiveness of its programs in partnership with colleges and universities, ACUE employs a rigorous accountability framework, consisting of six levels of evaluation:

(1) faculty engagement, (2) faculty learning, (3) faculty implementation, (4) student engagement, (5) course-level student outcomes, and (6) institutional outcomes (MacCormack et al., 2018). The present evaluation focuses on level 5, specifically examining the impact of ACUE faculty on course-level student outcomes.

Prior research using this framework has linked faculty certification in ACUE's programs to improved completion and passing rates, lower DFW rates, and higher final course grades across a range of institutional settings and student populations (Hecht, 2019; Lawner & Snow, 2018, 2020; Lawner et al., 2019; Pippins, Chasteen et al., 2021; Pippins, Hartigan, et al., 2021, Pippins, Lawner, et al., 2021), emphasizing ACUE certification's role in enhancing academic success for all students.

Among the options offered by ACUE, many institutions choose to provide faculty the opportunity to engage in ACUE's certification pathway through a flexible four-course pathway. These Pathway courses are aligned with ACUE's Effective Teaching Framework and organized around four domains: promoting active learning, inspiring inquiry and lifelong learning, designing learner-centered courses, and creating productive learning environments. Faculty can complete the courses individually or in sequence, ultimately earning certification upon completing all four. This flexible design allows institutions to tailor professional development to their context and goals and support faculty in adopting evidence-based practices while enabling the exploration of both partial and full participation over time.

Florida Atlantic University (FAU) is a public Hispanic-Serving Institution (HSI) in southeast Florida, serving over 30,000 students across six campuses. The main campus of this research-focused university is located in Boca Raton, Florida. As part of its commitment to improving student success and instructional quality, FAU partnered with ACUE to provide faculty with access to research-based teaching development through the ACUE Pathway course model leading to ACUE certification.

This report presents the evaluation of ACUE's impact on student outcomes at FAU, focusing on whether faculty participation in ACUE Pathway courses and subsequent certification led to improvements in course completion, passing rates, DFW rates, and final course grades. As in previous ACUE evaluations, this study uses a Difference-in-Differences (DID) framework to compare changes in student outcomes across three time points (before, during, and after faculty certification) between ACUE-certified and non-certified instructors. This evaluation focuses specifically on the Pathway course model, which allows faculty to progress through modular instructional development leading to certification. By examining changes in student outcomes over time between matched instructional contexts, this study provides a rigorous assessment of whether the ACUE certification contributes to improved student performance and a better understanding of the relationship between faculty development and student success.

Methods

Participants and Procedures

A total of 346 faculty at Florida Atlantic University participated in at least one of ACUE's Pathway courses between fall 2021 and fall 2024. Of these, 123 faculty met the criteria for inclusion in the evaluation: completion of the full ACUE certification in Effective Teaching Practices (through four or more Pathway courses) and no prior exposure to other ACUE courses.

Faculty participation data were drawn from ACUE's internal records, and FAU's Office of Institutional Effectiveness and Analysis supplied comprehensive datasets for this evaluation, including course section data, instructor demographic and employment information, student demographic characteristics, and student-level course outcomes (i.e., transcript data). This data covered all course sections taught by certified faculty from fall 2020 to fall 2024 and included a set of comparable sections taught by faculty with no ACUE participation.

Faculty were categorized based on whether they had completed ACUE certification by a given term. The final dataset allowed for the examination of student performance trends across three time points, baseline (prior to faculty participation), during the certification process, and after ACUE certification, supporting a longitudinal Difference-in-Differences analysis of ACUE's instructional impact.

Comparison course sections were selected based on semester, department, and course level and subsequently matched to ACUE-taught sections using those criteria as well as instructor tenure status (see Matching Process). This approach ensured that comparison sections were similar in content and instructional context to those taught by faculty completing the ACUE certification, enhancing the robustness of the evaluation.

The analytic sample consisted of 321,525 non-unique student enrollments from 8,076 course sections taught by 1,092 instructors across fall 2020 to fall 2024. As mentioned, this period included baseline data (prior to faculty enrollment in any ACUE course), during-ACUE data (covering all terms between an instructor's first ACUE enrollment and the term of certification), and post-ACUE data (terms following certification). These time frames varied across instructors depending on when they began ACUE Pathway courses and completed certification. On average, ACUE instructors had 3.4 (SD = 1.88) semesters during the baseline period, 2.4 (SD = 0.98) semesters during the ACUE participation period, and 2.1 (SD = 1.13) semesters in the post-ACUE period. Within the sample, there were 95,691 non-unique student enrollments from 2,044 sections taught by 109 ACUE faculty, and 225,834 non-unique student enrollments from 6,032 sections taught by 983 non-ACUE faculty. Table 1 summarizes the number of enrollments and course sections by faculty type and time frame.

Table 1: *Number of Student Enrollments and Course Sections by Faculty Type and Time Frame at FAU*

	Faculty type			
	ACUE		Non-ACUE	
Time frame	Non-unique student enrollments	Course sections	Non-unique student enrollments	Course sections
Baseline	45,130	892	98,981	2,432
During ACUE	32,933	714	73,072	2,059
Post ACUE	17,628	438	53,781	1,541

Sections taught by ACUE faculty were significantly larger on average across all three time frames. In the baseline period, the average section size for ACUE faculty was 50.59 (SD = 58.58), while for non-ACUE faculty it was 40.70 (SD = 41.81), $t(3322) = -5.39$, $p < .001$. During the ACUE course period, the average section size for ACUE faculty was 46.13 (SD = 62.42), while for non-certified faculty it was 35.49 (SD = 43.18), $t(2771) = -5.01$, $p < .001$. In the post period, the average section size decreased to 40.25 (SD = 49.27) for ACUE faculty, while it decreased to 34.90 (SD = 45.08) for non-certified faculty, $t(1977) = -2.145$, $p = .032$.

ACUE faculty were significantly more likely to be women (72.5%) compared to non-ACUE faculty (52.1%), $\chi^2(1, N = 1{,}092) = 16.43$, $p < .001$ (see Figure 1). There were also statistically significant differences in the racial/ethnic composition of ACUE and non-ACUE faculty, $\chi^2(4, N = 1{,}092) = 9.68$, $p = .046$. This difference was primarily driven by a higher proportion of faculty identifying as Hispanic or Latino among ACUE instructors (16.5% vs. 13.0%) and a lower proportion of faculty identifying as Black or African American (4.6% vs. 13.7%) compared to their non-ACUE counterparts (see Figure 2). No significant differences were found between groups in tenure-track status (22.0% ACUE vs. 27.0% non-ACUE), $\chi^2(1, N = 1{,}092) = 1.23$, $p = .267$, or international status (4.6% ACUE vs. 8.4% non-ACUE), $\chi^2(1, N = 1{,}092) = 1.97$, $p = .161$.

Figure 1: *Faculty Proportions by Gender in the FAU Analytic Sample*

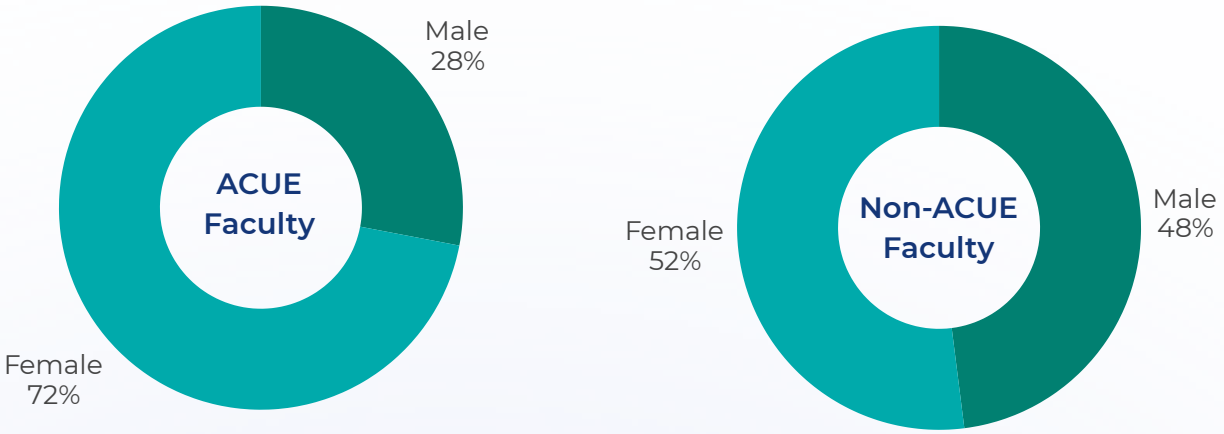
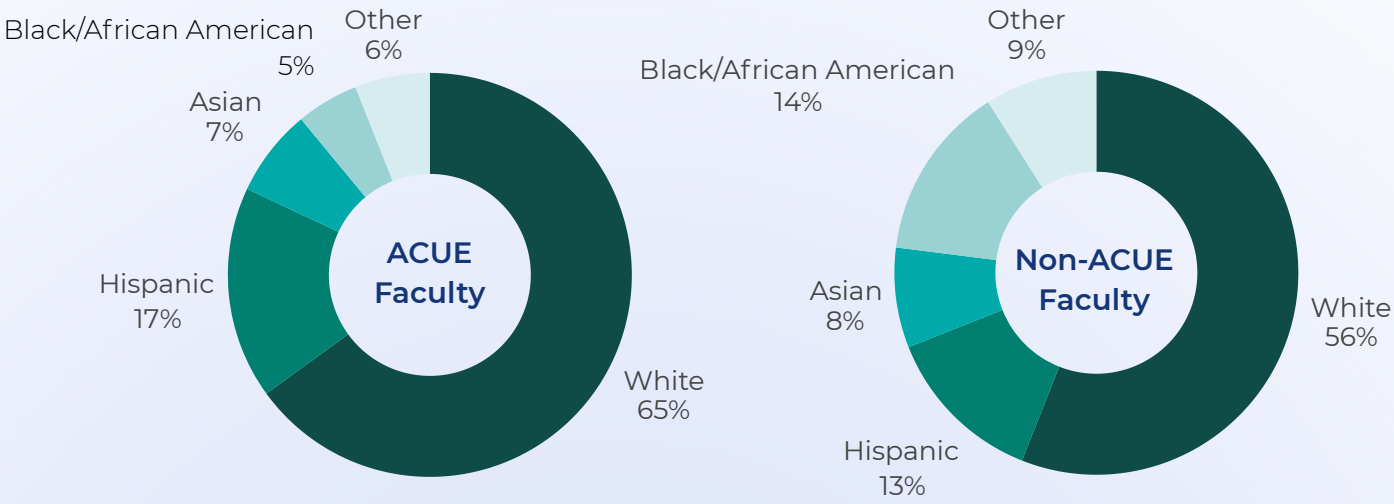


Figure 2: *Faculty Proportions by Race/Ethnicity in the FAU Analytic Sample*



As displayed in Table 2, the average age across all student enrollments in the sample was 21.54 years (*SD* = 5.02). White students comprised the plurality (42.2%) of the total enrollments, followed by Hispanic or Latino students (27.2%), Black or African American students (19.1%), and students of other races/ethnicities (10.4%). A small proportion of the sample consisted of international students (2.7%). Most enrollments were female students (60.7%) and online courses (55%). Additionally, a large proportion of the enrollments were Pell-eligible students (35.6%) and first-generation college students (19.9%).

Table 2: *Descriptive Statistics for Course Sections Taught by ACUE Faculty and Matched Sections*

Variable	Mean	Standard deviation
Age	21.54	5.02
Female students (%)	.607	.488
Black/African American students (%)	.191	.393
White students (%)	.422	.494
Hispanic/Latino students (%)	.272	.445
Students of other race/ethnicity (%)	.104	.304
Students of unknown race/ethnicity (%)	.011	.103
International students (%)	.027	.163
First-Generation college students (%)	.199	.400
Pell-eligible students (%)	.356	.479
Instructional Mode: in-person (%)	.237	.425
Instructional mode: Hybrid (%)	.205	.403
Instructional mode: Online (%)	.550	.497
Students in general education courses	.291	.454

Note. *N* = 321,525

Matching Process

To ensure a robust comparison between sections taught by faculty who had varying levels of ACUE exposure and those taught by instructors with no exposure, Coarsened Exact Matching (CEM) was used to pre-process the data before analysis. CEM paired course sections that shared key contextual features, thus reducing imbalance and ensuring that the treatment (ACUE faculty group) and the comparison group were as similar as possible, minimizing potential confounding effects and ensuring that the results reflected the impact of ACUE exposure rather than other external factors.

Course sections were matched based on four criteria: course semester, course department, course level (e.g.,100, 200, 300), and the tenure status of the instructor. These variables were selected to account for variation in course content, instructional level, and faculty type, each of which may influence student outcomes. For example, a 100-level psychology course taught by a tenure-track instructor in the treatment group would only be matched to a similar psychology course of the same level taught by a tenure-track instructor in the comparison group during the same semester.

The matching followed a one-to-many structure, where each treated course section (taught by ACUE faculty) was matched to multiple eligible comparison sections that met the matching criteria. Of the 2,268 ACUE-taught sections, 2,044 (over 90%) were successfully matched to comparable non-ACUE sections, supporting the robustness of the evaluation. A Match Weight variable was constructed to account for this structure and included in all models as a covariate to ensure that the contribution of each matched comparison section was weighted appropriately.

Measures

Four student outcomes were examined in this evaluation: course completion, passing, DFW rates, and final course grades. The first three outcomes are binary variables, while course grades are treated as a continuous outcome.

The course completion variable was coded as 1 for all students who remained enrolled through the end of the term in the course and received a final grade, and 0 for students who withdrew (e.g., received a W or WM). The passing variable was coded as 1 for all students who received passing marks (A, B, C, D, S, or P), and 0 for those who received non-passing marks (F or U). Students who withdrew before receiving a final grade were excluded from the passing analyses. The DFW variable was coded as 1 for students who received a D, F, or W-equivalent grade, and 0 for all other outcomes.[1]

Final course grades were converted from letter grades to a numeric 4-point GPA scale, where A = 4.0, A- = 3.67, B+ = 3.33, and so forth. Students who withdrew or received non-graded outcomes (i.e., S, P, or U) were excluded from the grade analysis.

[1] FAU uses several non-letter grade symbols in its grading system, including “S” (Satisfactory), “U” (Unsatisfactory), “P” (Pass), and “W” (Withdrawal). For a complete explanation of FAU’s grading symbols, see: https://www.fau.edu/registrar/gradesys/

Analytic Approach

This evaluation used a Difference-in-Differences (DID) modeling approach to assess the impact of ACUE Pathway course participation on student outcomes. The analysis focused on comparing changes in outcomes across three time frames—before, during, and after certification—for students in sections taught by ACUE-certified instructors versus matched sections taught by non-certified instructors during the same periods. The key independent variables were a categorical indicator for time frame (baseline, during certification, and post certification), a binary indicator for ACUE certification status, and their interaction. Because instructors began the ACUE Pathway at different times, the timing of each time frame varied by instructor (stacked DID design).

The model included covariates for student demographic characteristics (age, gender, race/ethnicity, Pell eligibility, college generational status, international status, class standing, and enrollment status), instructor characteristics (tenure status, instructional status, instructor international status, race/ethnicity, gender, and years at the institution), and course characteristics (section size, instructional modality, semester, and match weight). Fixed effects for instructors were included to control for unobserved, time-invariant instructor-level factors, and academic term was included to account for broader semester-level trends.

Outcomes were analyzed using Linear Probability Models (LPM). Standard errors were clustered at the instructor level to account for repeated measures. To illustrate the effects of ACUE participation across time frames, predicted values were generated using linear predictions from the regression models and averaged by time frame and ACUE group to support visual interpretation. Additionally, three-way interaction terms were included to examine whether the impact of ACUE participation varied by key subgroups, including student race/ethnicity, gender, Pell eligibility, college generational status, and general education courses.

Using LPM with instructor fixed effects allowed us to control for all time-invariant instructor characteristics and isolate within-instructor changes in student outcomes over time as they progressed through ACUE Pathway courses. Given the large sample size and the staggered timing of treatment across instructors, LPM offers a computationally efficient and interpretable framework that aligns well with the structure of the stacked DID design. LPM is also more robust and scalable than nonlinear models when incorporating fixed effects in large datasets, particularly in the case of this dataset, which included over 1,000 instructors in the analytic sample.

Results

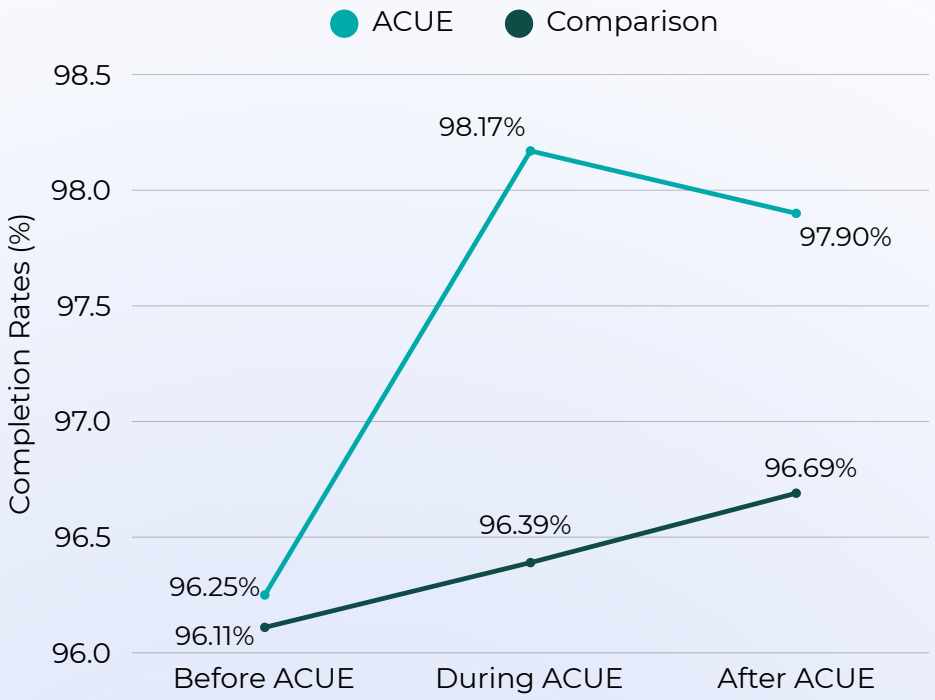
Completion Rates

The DID estimates for the impact of ACUE faculty on changes over time in student completion rates were statistically significant in both the during-ACUE period, b = 0.009, SE = 0.003, 95% CI

[0.003, 0.016], p = .006, and the post-ACUE period, b = 0.010, SE = 0.004, 95% CI [0.003, 0.017], p = .005, relative to the comparison group. Specifically, this shows an improvement of approximately 1 percentage point in course completion for students taught by ACUE faculty compared to students taught by non-ACUE faculty, suggesting that completion of the ACUE certification program may help more students finish the courses they start.

These changes represent an increase of 2% from baseline to the during period (from 96.25% to 98.17%), and by 1.71% from baseline to the post period (from 96.25% to 97.90%) among students taught by ACUE faculty (see Figure 3).

Figure 3: *Changes in Predicted Completion Rates Across Time Points by Instructor Type*



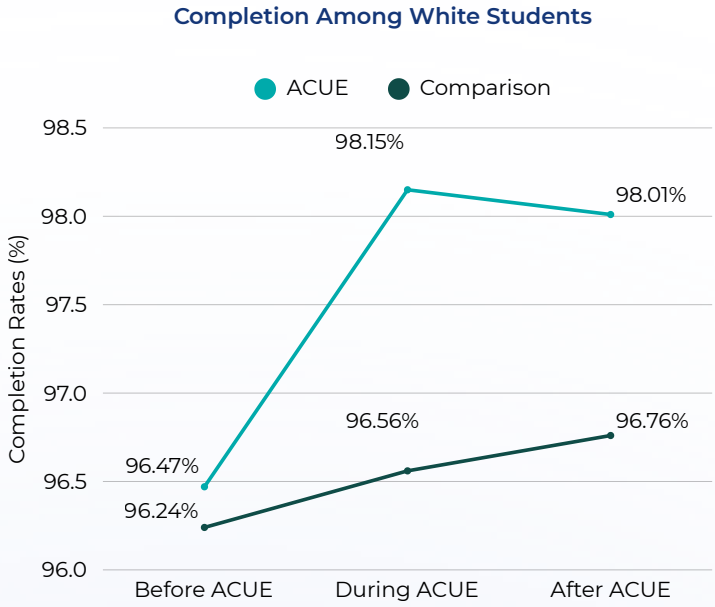
Interactions With Student Race/Ethnicity

A significant interaction was found between Hispanic or Latino students, faculty type, and the during-ACUE period, b = 0.009, SE = 0.004, 95% CI [0.0004, 0.0172], p = .040, indicating a larger positive impact of ACUE faculty on completion rates for Hispanic or Latino students compared to White students during this period. The interaction for Hispanic or Latino students in the post-ACUE period was not significant, b = 0.002, SE = 0.006, 95% CI [-0.009, 0.013], p = .702. In contrast, students categorized as "other race" showed a significantly smaller impact of ACUE faculty on completion rates compared to White students in both the during-ACUE period, b = -0.011, SE = 0.005, 95% CI [-0.020, -0.001], p = .029, and the post-ACUE period, b = -0.011, SE = 0.005, 95% CI [-0.021, -0.001], p = .032 (see Figure 4).

No significant interactions were found for Black or African American students in either the during-ACUE period, *b* = 0.003, *SE* = 0.005, 95% CI [-0.006, 0.012], *p* = .544, or the post-ACUE period, *b* = 0.001, *SE* = 0.005, 95% CI [-0.010, 0.012], *p* = .840. Similarly, there were no significant interactions for students with unknown race/ethnicity in the during-ACUE period, *b* = 0.007, *SE* = 0.018, 95% CI [-0.028, 0.041], *p* = .710, or the post-ACUE period, *b* = 0.008, *SE* = 0.017, 95% CI [-0.025, 0.041], *p* = .635.

These findings suggest that while Hispanic or Latino students experienced a greater positive impact from ACUE faculty during the certification period, students in the "other" racial category experienced comparatively smaller gains in completion, and no differential effects were observed for Black or African American or unknown-race students relative to White students.

Figure 4: *Predicted Completion Rates Across Time Points by Instructor Type and Student Race/Ethnicity*

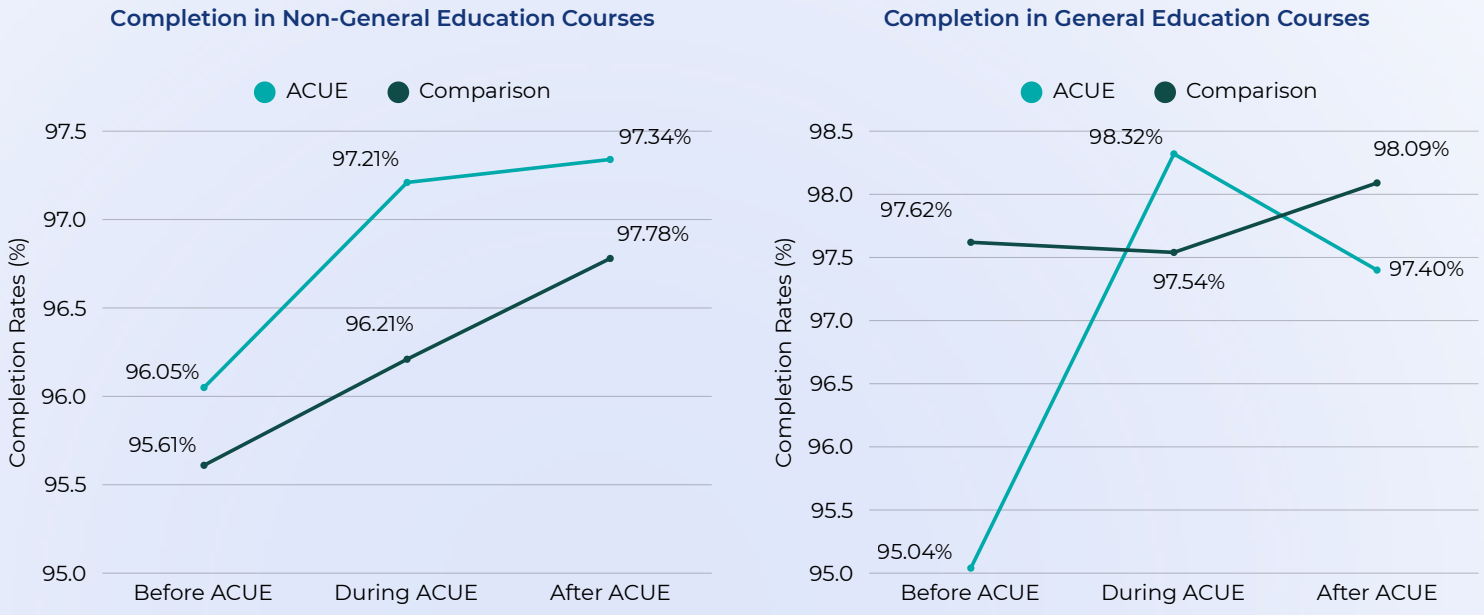


Interactions With General Education Courses

A significant interaction was found between general education courses, faculty type, and the during-ACUE period, b = 0.024, SE = 0.008, 95% CI [0.008, 0.040], p = .004, indicating a larger positive impact of ACUE faculty on completion rates for general education courses compared to other courses during this period. The interaction for general education courses in the post-ACUE period was not statistically significant, b = 0.010, SE = 0.010, 95% CI [-0.011, 0.030], p = .348 (see Figure 5).

These findings suggest that the benefits of ACUE faculty were particularly pronounced for students in general education courses during the ACUE certification period, but the effects were similar across course types in the post-ACUE period.

Figure 5: *Predicted Completion Rates Across Time Points by Instructor Type and Course Type*



Non-Significant Interactions With Student Demographics

Follow-up analyses revealed no significant interaction effects between faculty type, time point, and the following student characteristics examined for completion rates.

- **Student Gender:** The interaction for male students was not significant during the ACUE certification period, *b* = 0.002, *SE* = 0.004, 95% CI [-0.006, 0.010], *p* = .584, or in the post-ACUE period, *b* = 0.007, *SE* = 0.005, 95% CI [-0.002, 0.017], *p* = .122.
- **College Generational Status:** The interaction for first-generation college students during the ACUE certification period was not significant, *b* = 0.002, *SE* = 0.002, 95% CI [-0.003, 0.006], *p* = .424, nor was it significant in the post-ACUE period, *b* = -0.002, *SE* = 0.002, 95% CI [-0.006, 0.003], *p* = .408.
- **Pell Eligibility:** The interaction for Pell-eligible students during the ACUE certification period was not significant, *b* = 0.0001, *SE* = 0.002, 95% CI [-0.004, 0.004], *p* = .948.

These findings suggest that ACUE certification's impact on completion rates did not differ across these subgroups at FAU.

Passing Rates

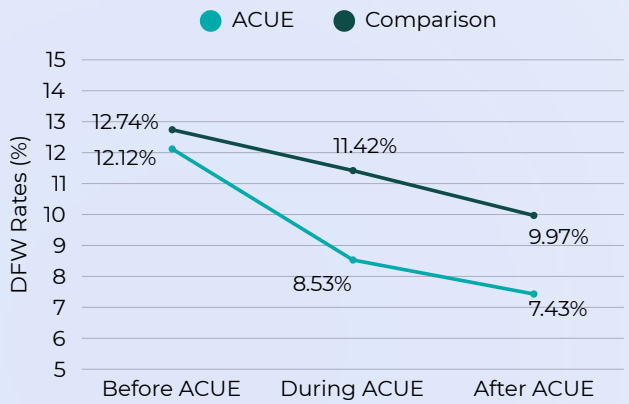
The DID estimates for the impact of ACUE faculty on changes over time in passing rates were not statistically significant in either the during-ACUE period, *b* = 0.004, *SE* = 0.005, 95% CI [-0.006, 0.015], *p* = .440, or the post-ACUE period, *b* = 0.007, *SE* = 0.005, 95% CI [-0.002, 0.017], *p* = .132, relative to the comparison group.

DFW Rates

The DID estimates for the impact of ACUE faculty on changes in DFW rates were statistically significant in the ACUE-post period only, *b* = -0.020, *SE* = 0.009, 95% CI [-0.037, -0.004], *p* = .017, and not in the during-ACUE period, *b* = -0.015, *SE* = 0.009, 95% CI [-0.033, 0.003], *p* = .107.

This reflects a reduction of approximately 2 percentage points in DFW rates for students taught by ACUE faculty relative to the comparison group after certification. Among students taught by ACUE faculty, this change represents a 38.7% decrease in DFW rates from baseline to the post-ACUE period (dropping from 12.12% to 7.43%) (see Figure 6).

Figure 6: *Predicted DFW Rates Across Time Points by Instructor Type*



Follow-up analyses revealed no significant interaction effects between faculty type, time point, and the following student characteristics examined for DFW rates.

- **Student Gender:** The interaction for male students in the post-ACUE period was not significant, *b* = -0.007, *SE* = 0.010, 95% CI [-0.025, 0.012], *p* = .496.
- **Student Race/Ethnicity:** The interactions for Hispanic or Latino students, *b* = -0.008, *SE* = 0.008, 95% CI [-0.023, 0.007], *p* = .289, other-race students, *b* = 0.007, *SE* = 0.010, 95% CI [-0.013, 0.027], *p* = .499, and unknown-race students, *b* = 0.022, *SE* = 0.028, 95% CI [-0.033, 0.076], *p* = .439, were not significant in the post-ACUE period.
- **College Generational Status:** The interaction for first-generation students in the post-ACUE period was not significant, *b* = -0.001, *SE* = 0.009, 95% CI [-0.018, 0.016], *p* = .944.
- **Pell Eligibility:** The interaction for Pell-eligible students in the post-ACUE period was not significant, *b* = -0.004, *SE* = 0.0081, 95% CI [-0.020, 0.012], *p* = .635.
- **General Education Courses:** The interaction for students in general education courses in the post-ACUE period was not significant, *b* = -0.003, *SE* = 0.022, 95% CI [-0.046, 0.040], *p* = .898.

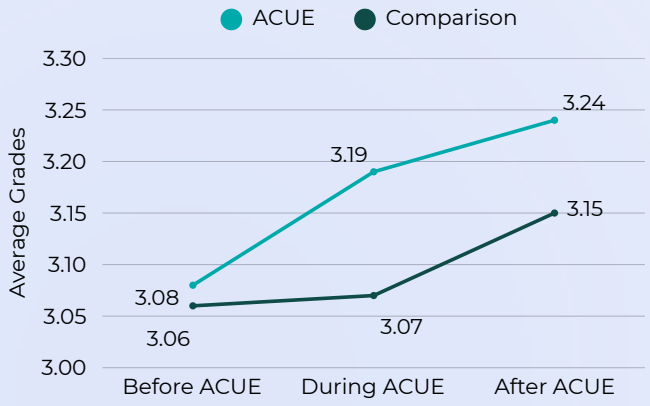
These findings suggest that ACUE certification's impact on DFW rates did not differ across these student subgroups at FAU.

Average Course Grades

The DID estimates for the impact of ACUE faculty on changes in average course grades were statistically significant in both the during-ACUE period, *b* = 0.093, *SE* = 0.042, 95% CI [0.011, 0.175], *p* = .026, and the post-ACUE period, *b* = 0.091, *SE* = 0.040, 95% CI [0.012, 0.169], *p* = .024, relative to the non-ACUE group.

These estimates indicate that grades of students taught by ACUE faculty increased by approximately 0.09 grade points more (on a 4.0 scale) than their peers in the non-ACUE group during and after their instructors completed the ACUE certification. More specifically, among students taught by ACUE faculty, average course grades increased by 3.54% from baseline to the during-ACUE period (from 3.08 to 3.19), and by 5.40% from baseline to the post-ACUE period (from 3.08 to 3.24) (see Figure 7).

Figure 7: *Predicted Average Grades Across Time Points by Instructor Type*



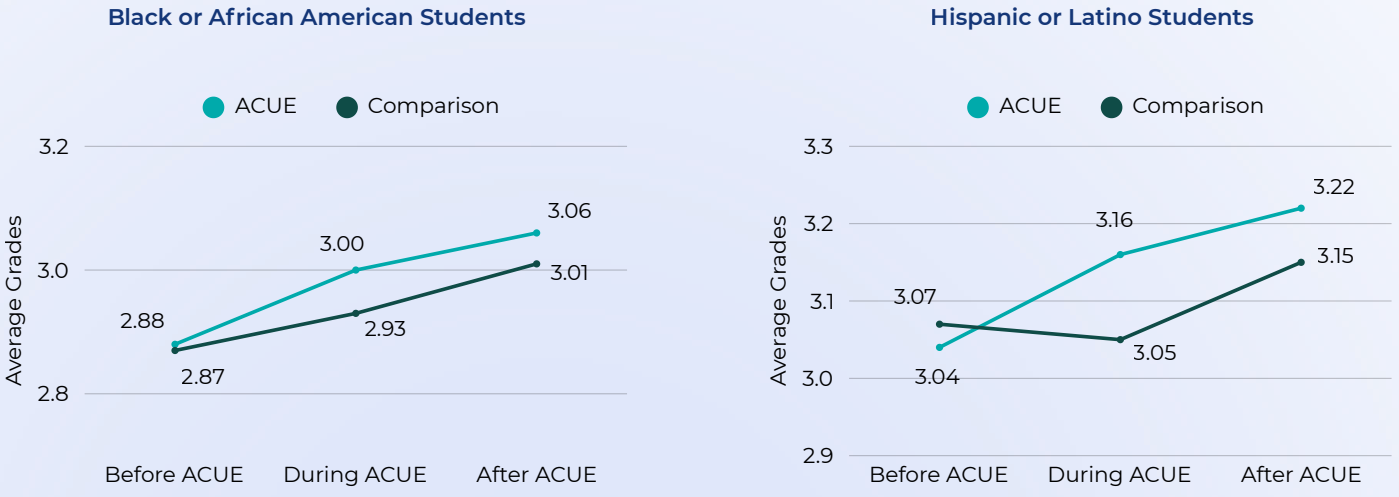
Interactions With Student Race/Ethnicity

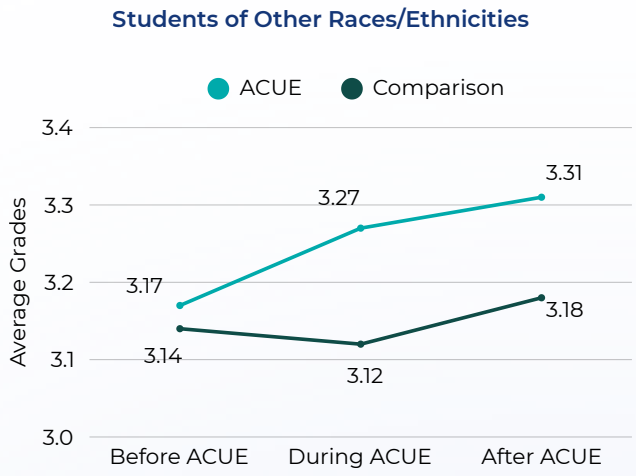
A significant interaction was found between students of unknown race/ethnicity, faculty type, and the during-ACUE period, *b* = -0.178, *SE* = 0.084, 95% CI [-0.343, -0.013], *p* = .035, indicating a lower gain in average grades for these students when taught by ACUE faculty during the ACUE certification period compared to White students (see Figure 8). The interaction for Hispanic or Latino students in the during-ACUE period was marginally significant, *b* = 0.047, *SE* = 0.025, 95% CI [-0.003, 0.097], *p* = .064, suggesting a possible trend toward greater improvement in average grades for Hispanic or Latino students of ACUE faculty compared to White students. The post-ACUE interaction term for Hispanic or Latino students was not significant, *b* = 0.027, *SE* = 0.031, 95% CI [-0.035, 0.088], *p* = .396.

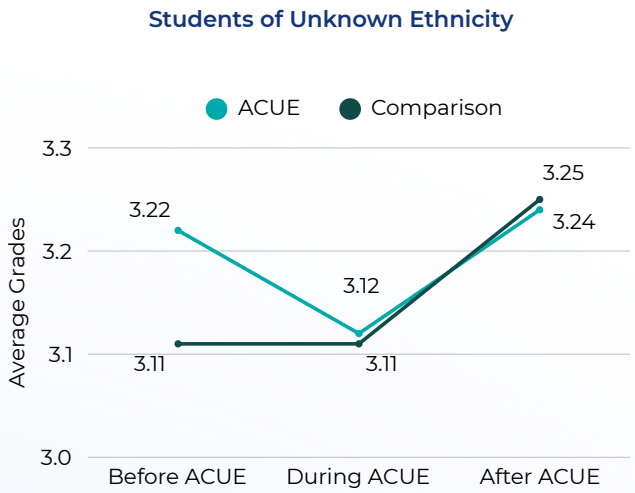
For Black or African American students, both the during-ACUE interaction, *b* = -0.029, *SE* = 0.033, 95% CI [-0.094, 0.036], *p* = .382, and the post-ACUE interaction, *b* = -0.036, *SE* = 0.039, 95% CI [-0.113, 0.041], *p* = .361, were not statistically significant. Similarly, no significant interactions were observed for students in the "other" race category in the during-ACUE period, *b* = 0.031, *SE* = 0.035, 95% CI [-0.038, 0.099], *p* = .379, or in the post-ACUE period, *b* = 0.028, *SE* = 0.038, 95% CI [-0.046, 0.102], *p* = .461.

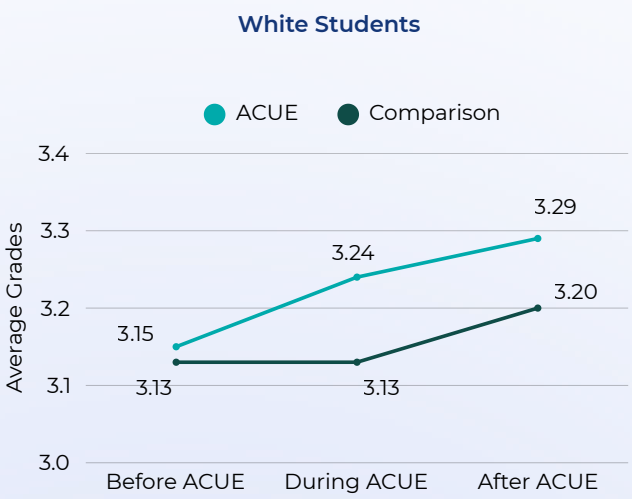
These results indicate that while students of unknown race/ethnicity saw smaller improvements in grades during the ACUE period relative to White students, no differential impact by race/ethnicity was observed in the post-ACUE certification period.

Figure 8: *Predicted Average Grades Across Time Points by Instructor Type and Student Race/Ethnicity*









Interactions With General Education Courses

A significant interaction was found between general education courses, faculty type, and the during-ACUE period, b = 0.231, SE = 0.073, 95% CI [0.088, 0.374], p = .002, indicating a considerably larger improvement in course grades for general education courses taught by ACUE faculty during the ACUE certification period compared to other courses (see Figure 9). The interaction for general education courses in the post-ACUE period was not statistically significant, b = 0.107, SE = 0.127, 95% CI [-0.142, 0.355], p = .401.

These results suggest that the ACUE certification program had a significantly larger positive impact on academic performance among students enrolled in general education courses during the ACUE certification period, but in the post-certification period, the overall positive impact was similar in magnitude among general education and other courses.

Figure 9: *Predicted Average Grades Across Time Points by Instructor Type and Course Type*

Non-Significant Interactions With Student Demographics

Follow-up analyses revealed no significant interaction effects between faculty type, time point, and the following student characteristics examined for average course grades.

- **Student Gender:** The interaction for male students during the ACUE period was not significant, b = 0.022, SE = 0.030, 95% CI [-0.037, 0.081], p = .469, nor was it significant in the post-ACUE period, b = -0.009, SE = 0.038, 95% CI [-0.083, 0.066], p = .816.
- **College Generational Status:** The interaction for first-generation students during the ACUE period was not significant, b = -0.008, SE = 0.027, 95% CI [-0.062, 0.046], p = .777, nor was it significant in the post-ACUE period, b = 0.009, SE = 0.030, 95% CI [-0.049, 0.067], p = .768.
- **Pell Eligibility:** The interaction for Pell-eligible students during the ACUE period was not significant, b = 0.017, SE = 0.021, 95% CI [-0.025, 0.059], p = .427, nor was it significant in the post-ACUE period, b = -0.017, SE = 0.028, 95% CI [-0.073, 0.039], p = .550.

These findings suggest that ACUE certification's impact on average course grades did not differ across these student subgroups at FAU.

Discussion

This evaluation provides the first comprehensive assessment of the impact of ACUE certification in Effective Teaching through Pathway courses on student outcomes, specifically for students of certified faculty at Florida Atlantic University spanning over nine academic terms. Using a DID approach, the study compared changes in course completion rates, passing rates, DFW rates, and final course grades among students taught by ACUE-certified faculty to those in matched sections taught by non-certified faculty over the same time period. Results indicate that ACUE certification is associated with meaningful gains in several key indicators of student success.

The most consistent improvements were observed in course completion and average course grades. Course completion in sections taught by ACUE-certified faculty improved significantly more than among comparison sections both while faculty were being certified and after certification, with an approximate 1 percentage point increase in completion rates relative to students taught by non-certified faculty. Although this magnitude may appear modest, it is notable given the already high baseline completion rates across the institution, with both groups starting at 96% course completion. Similarly, grades of students taught by ACUE certified faculty improved significantly more, by approximately 0.09 grade points, both during and after certification relative to their counterparts taught by non-ACUE faculty. These findings suggest sustained improvements in academic performance that may reflect stronger instructional design and more supportive learning environments associated with the adoption of evidence-based teaching practices promoted through ACUE Pathway courses.

It is important to highlight that these results emerged with faculty who were certified through the flexible four-course pathway option. Instructors completed the courses on a timeline that fit their schedules, and some took breaks between courses during the certification period. As a result, the during-ACUE period includes semesters in which some faculty may not have been actively enrolled in a Pathway course but had begun their ACUE certification journey. Despite this variation, significant gains in student completion and average grades were still observed during the certification period, highlighting the early value of engaging with ACUE's instructional framework.

A significant reduction in DFW rates was also observed in the post-certification period. This suggests that some instructional benefits may take time to fully materialize after faculty complete the certification requirements. The 2-percentage point reduction in DFW rates relative to course sections taught by non-ACUE faculty, which represents a 38.7% decline from baseline, is particularly meaningful, as DFW rates are closely linked to academic progression and retention (Bloemer et al., 2017; Koch & Pistilli, 2012).

In contrast, no significant changes were observed in course passing rates, although estimates trended in a positive direction. These results may reflect a ceiling effect in this outcome, a broader institutional context in which most students pass their courses, or other institutional initiatives that may have had an effect on this outcome, limiting the potential for additional gains.

Subgroup analyses revealed that the effects of ACUE certification were generally consistent across most student demographics, though several important differences emerged. Hispanic or Latino students experienced a greater increase in course completion during the certification period, which is an especially relevant finding given FAU's designation as an HSI, where a substantial proportion of the student body identifies as Hispanic or Latino. These results suggest that ACUE-certified faculty may be particularly effective in supporting the learning and persistence of Hispanic or Latino students served by HSIs through student-centered instructional practices. In contrast, smaller or null effects were observed among students in the "other" race/ethnicity category and among those with unknown race/ethnicity. These findings should be interpreted with caution due to the small size and heterogeneity of these groups, which complicates comparisons and interpretability of findings. Additionally, students enrolled in general education courses saw larger gains in both completion and average grades during the ACUE certification period. This highlights the potential of ACUE-certified faculty to positively impact foundational courses that are critical for degree progression and students' broader academic trajectory.

Taken together, these findings reinforce the body of evidence demonstrating the positive impact of ACUE certification on student outcomes. They also highlight the importance of faculty development as an effective strategy for improving academic success across various course contexts and student populations and when implemented flexibly and in alignment with institutional goals.

Limitations

One limitation of this evaluation is that the findings reflect the specific instructional, demographic, and policy context of Florida Atlantic University and may not be directly generalizable to other institutions. FAU's student population, course offerings, and institutional priorities, as well as the structure and timing of ACUE implementation, are unique, and these contextual features likely shaped how the program was experienced and how its effects developed. While the evaluation was designed to be rigorous and included matched comparison sections and instructor fixed effects, it remains focused on one institutional setting, and results should be interpreted with this consideration in mind.

Another important consideration is the limited availability of data on students' academic preparedness prior to enrolling in these courses. In particular, high school GPA records were not available for a large proportion of students in the dataset, which prevented the inclusion of a direct control for prior academic readiness. Although the models included a range of student-level covariates, such as Pell eligibility, first-generation status, and class standing, that are also associated with academic outcomes, these variables do not fully capture baseline differences in academic performance or skill development across students. As a result, it is important to consider that some unmeasured variation in student preparedness might have impacted some of the outcomes.

Finally, it is important to note that some of the academic terms included in this evaluation took place during the COVID-19 pandemic and that some of the faculty enrolled in ACUE Pathway courses in the post-pandemic recovery period, during which student behaviors, course-taking patterns, and institutional policies were still adjusting to longer-term shifts brought on by COVID-19. These contextual factors may have influenced student performance and faculty implementation of instructional strategies in ways not fully captured by the available data. While the analysis attempted to account for these dynamics by including academic term as a control variable, thus adjusting for institution-wide trends across semesters, it is possible that residual effects related to the pandemic and post-pandemic context may have shaped the findings in subtle or unmeasured ways.

Conclusion

The findings from this evaluation highlight the positive impact of ACUE-certified faculty on student outcomes at Florida Atlantic University. Significant improvements in course completion and average grades were observed during and after certification, alongside a meaningful reduction in DFW rates in the post-certification period. These outcomes emerged in the during-certification period despite variation in faculty pacing through the flexible ACUE Pathway model, suggesting that, similar to certification through the year-long comprehensive course, benefits to students can occur during Pathway certification. Additionally, the stronger gains observed among Hispanic or Latino students and those in general education courses indicate the potential of evidence-based teaching practices to support success among key student populations. Together, these results reinforce the value of sustained investment in faculty development initiatives like ACUE certification to improve teaching effectiveness and promote academic success across learning environments with different needs.

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