

Larger Gains in Student Achievement for Gateway Courses Taught by ACUE Faculty at the University of Southern Mississippi



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Significant effects on grades, passing, and DFW rates in years while faculty are taking ACUE courses. Significant effects on passing, and DFW rates in years after faculty are ACUE-credentialed.

At the University of Southern Mississippi (USM), faculty began taking ACUE microcredential courses in Fall 2016. These analyses focus on all students across 10 gateway courses (a total of 507 course sections) taught by 18 ACUE and 68 nonACUE faculty at USM between Fall 2015 and Spring 2020. We find evidence that taking ACUE courses increased faculty effectiveness, as measured by student achievement. Specifically, there were improvements in students' grades, passing, and DFW rates for gateway course sections taught by ACUE faculty in the years while faculty were earning their ACUE credential (during time periods). There were also improvements in students' passing and DFW rates for gateway course sections taught by ACUE faculty in the years after faculty earned their ACUE credential (post time periods).

Key Findings:

★ Grades:

There was a significant effect on students' grades in gateway course sections taught by ACUE faculty in the during time periods compared to before faculty began their ACUE courses, $p < .001$

- Estimates indicate gains in students' grades of approximately .12 grade points (on a 4.0 scale) in gateway course sections taught by ACUE faculty in the during time periods.

★ Passing and DFW:

There was a significant effect on passing and DFW rates in gateway course sections taught by ACUE faculty in the during and in the post time periods compared to before faculty began their ACUE courses, p 's $< .05$.

- Passing rates increased by 4.3 percentage points with a sustained increase of 3.9 percentage points in course sections taught by ACUE faculty.
- DFW rates decreased by 3.8 percentage points with sustained decrease of 2.9 percentage points in course sections taught by ACUE faculty.

Specifically for college freshmen, there was a significant effect on students' grades and passing and DFW rates in gateway course sections taught by ACUE faculty in the during time periods than before faculty began their ACUE courses, p 's $< .003$.

- Estimates indicate gains in grades of approximately .17 grade points (on a 4.0 scale).
- Passing rates increased by 6.4 percentage points.
- DFW rates decreased by 5.3 percentage points.
 - The decrease in DFW rates was 6 percentage points larger for Black college freshmen than for White college freshmen in the during time periods.

Methodology

These analyses span Fall 2015 through Spring 2020 and the sample comprises 35,241 student-by-course section level outcomes, representing 14,977 unique students. These gateway course sections were taught by 86 USM faculty. These analyses focus on the 237 gateway course sections (a total of 10,155 unique student enrollments) taught by 18 ACUE faculty. Estimates measure both the gains/losses in achievement of students taught by an ACUE faculty while taking ACUE courses compared to students taught by the same ACUE faculty before they took an ACUE course, as well as the gains/losses in achievement of students taught by an ACUE faculty after earning the ACUE credential compared to students taught by the same ACUE faculty before they took an ACUE course.

To mitigate bias related to overall changes that occur in gateway courses at USM, we also include the 270 gateway course sections (a total of 11,087 unique student enrollments) taught by 68 non-ACUE faculty. Specifically, the gains/losses in achievement of students taught by ACUE faculty are differenced from the gains/losses in achievement of students in equivalent course sections taught by non-ACUE faculty over time. We also control

for several time-varying student-level (e.g., gender, Pell recipient), course-level (student enrollments), and faculty-level characteristics (experience).

Course grades were converted from an alphabetic scale to a numeric equivalent (A = 4, B = 3, C = 2, D = 1, F = 0). Students who withdrew from a course before receiving a final grade or had grades that could not be converted to a numeric scale (e.g., P) were not included in analyses when course grades were used as an outcome. At USM, passing marks included A, B, C, D, Z, and P, and DFW marks included D, F, W, and NP. Students who received marks of NA, AUD, and I were excluded from all analyses. Additional exclusions include gateway courses taught by graduate students, graduate student course outcomes, courses taught in summer terms, labs that accompany gateway courses, co-instructed courses, as well as courses with fewer than 10 students enrolled.