

# What We Know About Online Course Outcomes

## Online Higher Education Is Expanding Rapidly

Since 2010, online college course enrollment has increased by 29 percent. Currently, 6.7 million students—or roughly one third of all college students—are enrolled in online courses. Community colleges in particular have embraced online education as a way to better serve their large numbers of nontraditional students, many of whom juggle multiple responsibilities. In 2008, 97 percent of two-year colleges were offering online courses—compared with only 66 percent of all postsecondary institutions.<sup>1</sup>

Despite this rapid growth in online education, little is known about the effectiveness of online courses for community college students. Over the past two years, CCRC has sought to fill this gap in knowledge by conducting studies of online course outcomes at two large statewide community college systems, one in a southern state and one in a western state.<sup>2</sup>

This research overview is part one in CCRC's online learning practitioner packet. To learn more about what administrators can do to improve student outcomes, see *Creating an Effective Online Environment* (part two). For more information on effective online teaching, see *Creating an Effective Online Instructor Presence* (part three).

### DEFINITION

#### ONLINE COURSE

Throughout this practitioner packet, an “online” course refers to a course held entirely online, as opposed to a “hybrid” course which consists of both online and face-to-face instruction.

## Who Takes Online Classes?

In both state systems, online courses were more popular among community college students who had relatively strong academic backgrounds. Online students were more likely to be academically prepared at entry, from higher income neighborhoods, and fluent in the English language. Online students were also more likely to be balancing multiple life demands (e.g., to be 25 or older, to have dependents, or to be employed full time) and to be White.

Nearly half of the students in these statewide systems took at least one online course during their first four or five years of enrollment. However, few students took all their courses online. Fewer than 5 percent of students took all of their courses online in their first semester; most “online” students enrolled in a mix of online and face-to-face courses throughout their college careers.<sup>3</sup>

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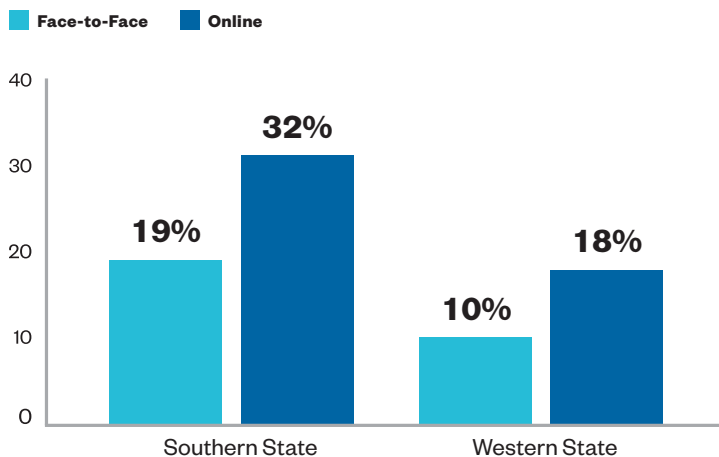
# What the Research Tells Us

## Students More Likely to Withdraw From Online Courses

Because of the distinct characteristics of students who take online classes, CCRC compared online and face-to-face course outcomes among only those students who had ever taken an online course during the period of study (“ever-online” students). We first examined overall course failure and withdrawal rates, meaning that students paid full tuition for the course but ultimately earned no credit for it, either because they failed or dropped out of the course. In both states, failure and withdrawal rates were significantly higher for online courses than for face-to-face courses.

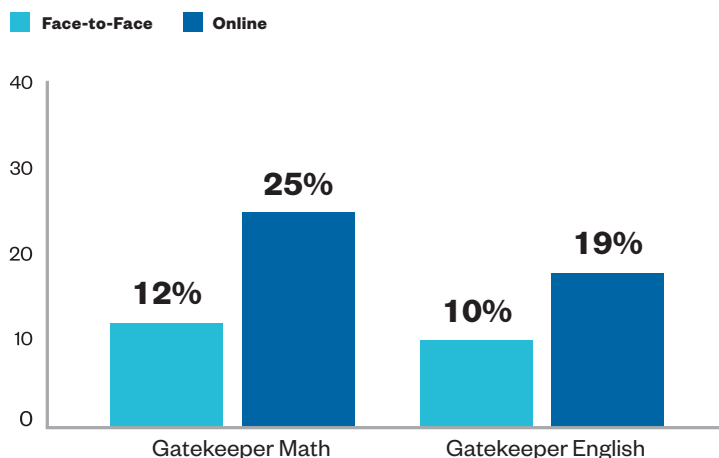
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### Failure/Withdrawal Rates in Online and Face-to-Face Courses (Southern<sup>4</sup> and Western<sup>5</sup> States)



In further analysis of the southern state, we examined introductory math and English courses—key “gatekeeper” courses required for almost all students. Again, failure and withdrawal rates for online gatekeeper courses were substantially higher than those for face-to-face gatekeeper courses.

### Failure/Withdrawal Rates in Online and Face-to-Face Gatekeeper Courses (Southern State)<sup>6</sup>



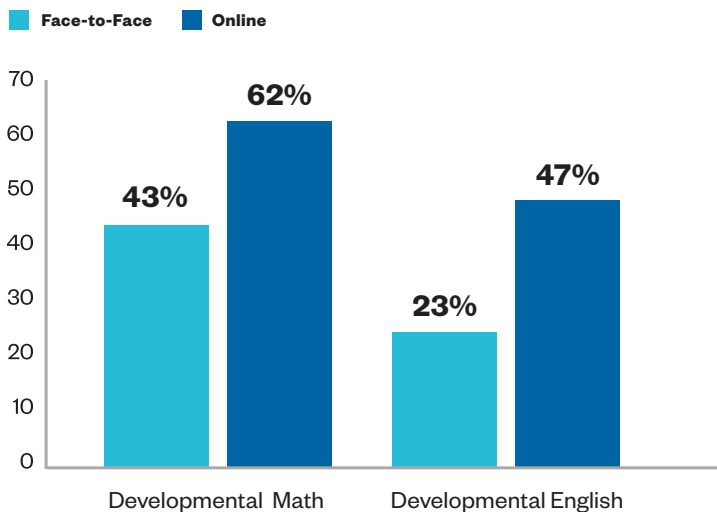
## Course Completers Perform More Poorly in Online Courses

While former studies have found fairly similar grades among students who completed either an online or face-to-face section of a given course,<sup>7</sup> CCRC's studies of the two statewide systems suggest that these earlier studies may have underestimated differences in student performance. CCRC's analyses found that students who completed online course sections were 3 to 6 percentage points less likely to receive a C or better than students who completed face-to-face course sections.<sup>8</sup>

## Developmental Students Particularly Challenged in Online Courses

Students who took their developmental courses online fared particularly poorly. In both states, failure and withdrawal rates were sharply higher in online developmental courses; in online developmental English, failure and withdrawal rates were more than twice as high.

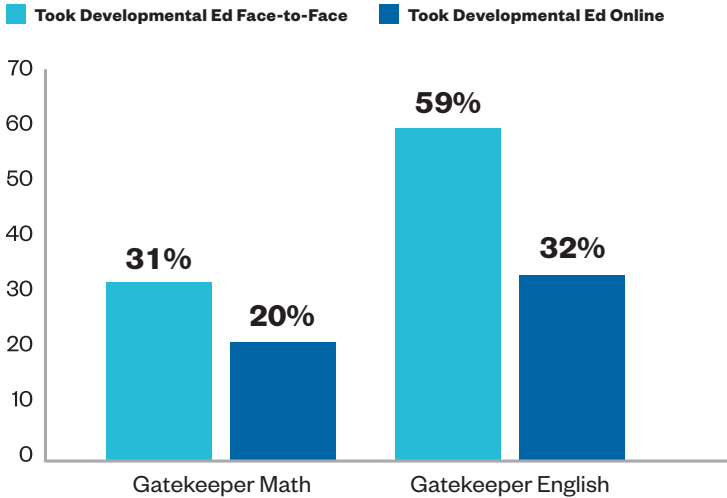
### Failure/Withdrawal Rates in Online and Face-to-Face Developmental Courses (Southern State)<sup>9</sup>



Students who took developmental courses online were also significantly less likely to enroll in first-level gatekeeper math and English courses. Of students who did enroll in gatekeeper courses, students who had taken developmental education online were far less likely to pass than students who had taken it face-to-face.

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### Gatekeeper Pass Rates Among Online and Face-to-Face Developmental Students Who Enrolled in Gatekeeper Courses (Southern State)<sup>10</sup>



### Students Who Take Online Courses Less Likely to Persist and Attain a Degree

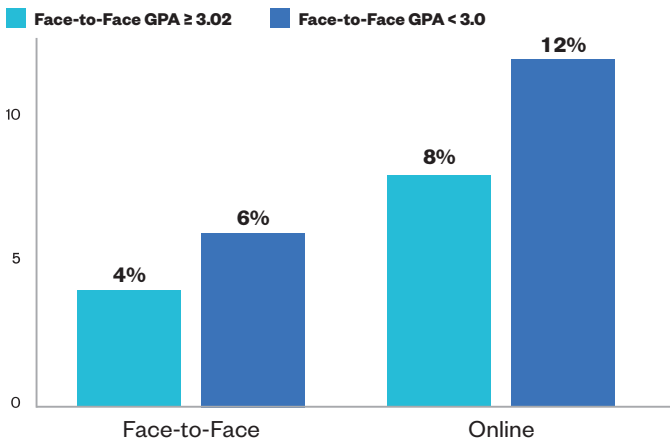
Online course taking was also negatively associated with college persistence and completion. Western and southern state system students who took one or more online courses in their first semester were 4 to 5 percentage points less likely to return for the subsequent semester. In both states, students who took a higher proportion of credits online were also less likely to obtain a degree or transfer to a four-year institution than students who took lower proportions of online credits (6 and 4 percentage points less likely, respectively).<sup>11</sup>

### Achievement Gaps Tend to Widen in Online Courses

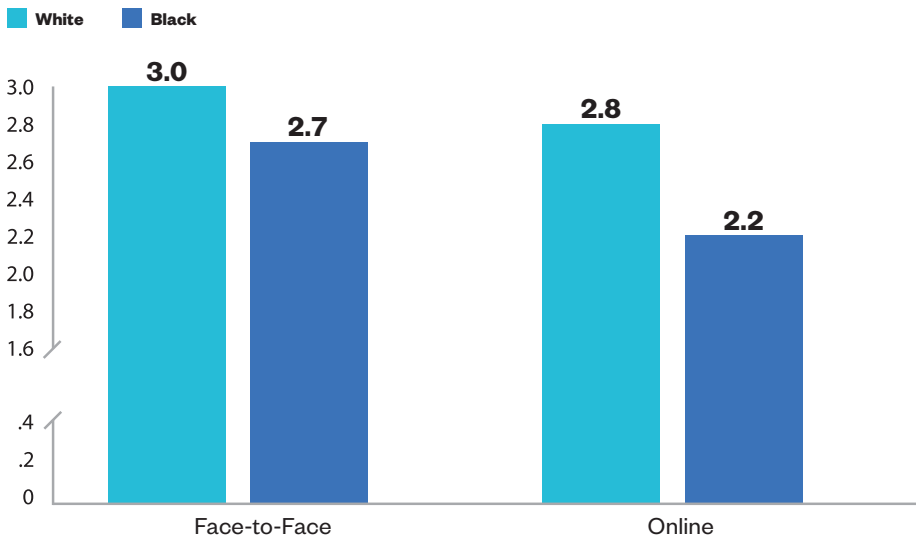
Some groups of students had particular difficulty adjusting to online learning, including males, students with lower prior GPAs, and Black students. The performance gaps that existed among these subgroups in face-to-face courses became even more pronounced in online courses. The increases in performance gaps were present in all subject areas.<sup>12</sup>

**The performance gaps that existed among student subgroups in face-to-face courses became even more pronounced in online courses.**

### Withdrawal Rates for Higher and Lower Performing Students in Face-to-Face and Online Courses (Western State)<sup>13</sup>



## Grades for Black and White Students Who Completed Face-to-Face and Online Courses (Western State)<sup>14</sup>



## Adding Strict Controls Increases Negative Outcomes Associated With Online Courses

The findings in this overview represent differences in online and face-to-face outcomes based on descriptive data.<sup>15</sup> To adjust these descriptive results for possible biases, CCRC researchers conducted analyses controlling for student socioeconomic and educational characteristics,<sup>16</sup> and they carried out a rigorous instrumental variable analysis in the western state.<sup>17</sup> In these analyses, the inclusion of strict controls for student characteristics increased estimated differences in failure and withdrawal rates among students taking online and face-to-face courses.

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## Conclusion

CCRC's studies suggest that community college students who choose to take courses online are less likely to complete and perform well in those courses. The results also suggest that online courses may exacerbate already persistent achievement gaps between student subgroups.

Additional CCRC qualitative research of online courses in one state system provides an in-depth look into why online courses may not be achieving better results. Part two of this practitioner packet, *Creating an Effective Online Environment*, reviews some of the findings from that research and makes recommendations for administrators seeking to improve online education at their institutions.

Part three of this practitioner packet, *Creating an Effective Online Presence*, addresses the importance of student-instructor interaction in online courses, describes a case study, and presents observations and considerations for online faculty working to improve student retention and performance in their courses.

## Endnotes

1. Parsad & Lewis (2008).
2. Overall withdrawal and failure rates vary between the two states. One reason for this difference may be that—in comparison with national data from the Integrated Postsecondary Education Data System—the student population in the southern state system is more rural and low-income, with a greater proportion of Black students. The student population in the western state system is more urban, with a higher proportion of White students.
3. Results from a nationwide study from 2007–08 (Radford, 2011) corroborate this finding.
4. Southern state system sample consists of slightly less than 24,000 students at 23 community colleges who were tracked from fall 2004 through summer 2008. The analysis was limited to students who took at least one online or hybrid course during that period, leading to a sample of 184,357 courses (Jaggars & Xu, 2010).
5. Western state system sample consists of over 51,000 students at 34 community colleges who were tracked from fall 2004 through spring 2009. The sample was limited to students who took at least one online or hybrid course, leading to a sample of 323,528 courses (Jaggars & Xu, 2011b).
6. Analysis based on observations of ever-online students in the 2004 cohort enrolled in 13,973 gatekeeper English and 8,330 gatekeeper math courses (Xu & Jaggars, 2011a).
7. See Jaggars & Bailey (2010).
8. Jaggars & Xu (2010); Xu & Jaggars (2011b).
9. Analysis based on 4,660 math remedial students and 2,495 English remedial students in the 2004 cohort who took at least one online course in the period of study. Analysis based on observations of 13,126 developmental courses; 373 of these courses were online developmental English and 773 courses were online developmental math (Jaggars & Xu, 2010).
10. Estimates derived from a model-based prediction of passing rates controlling for student-level and school-level characteristics among 4,660 remedial math students and 2,495 remedial English students in the 2004 cohort who took at least one online course in the period of study (Jaggars & Xu, 2010).
11. Jaggars & Xu (2010); Xu & Jaggars (2011b).
12. Xu & Jaggars (2013).
13. Analysis based on 51,017 degree-seeking students tracked from the fall term of 2004 through the spring of 2009 (Xu & Jaggars, 2013).
14. Analysis based on 51,017 degree-seeking students tracked from the fall term of 2004 through the spring of 2009 (Xu & Jaggars, 2013).
15. One exception is gatekeeper pass rates among students who enrolled and had taken developmental courses online and face-to-face (see figure on page 3), where estimates are derived from predictive models controlling for student and school characteristics.
16. Jaggars & Xu (2010); Xu & Jaggars (2011a, 2011b, 2013).
17. Xu & Jaggars (2012).

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