



SBCCD Distance Education Success and Completion Rates from 2012-2013 to 2016-2017

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Purpose of Brief

This brief illustrates the number of sections, grades on record (GOR) earned, and the success and completion rates for SBCCD courses from 2012–13 to 2016–17 by instructional method. In addition, student performance in lecture and online courses are compared while controlling for term, course, and instructor.

Summary of Findings

- The number of distance education sections (i.e. internet only and hybrid sections) increased by 439 (180%) from 2012–13 to 2016–17 while the proportion of lecture only sections decreased from 55% in 2012-13 to 48% in 2016-17.
- The number of grades on record (GOR) in distance education courses (i.e. internet only and hybrid sections) has increased from 11,947 in 2012–13 to 24,538 in 2016–17, a 105% increase.
- The success rate in distance education sections has slightly increased from 62% in 2012–13 to 64% in 2016–17.
- In 2016–17, students in distance education sections were statistically as likely ($p = .573$ and $ES = -.01$) to successfully complete the course (65%) compared to students in lecture sections (66%) taught by the same instructor in the same semester.

Findings

Table 1 illustrates the number and percent of sections by instructional method from 2012–2013 to 2016–2017 in sections where a grade on record (GOR) was earned. The proportion of lecture only sections declined in 2016–2017 while the proportion of lab only and online (i.e. internet and hybrid) sections increased. The number of total sections increased by 166 sections (3.4%) between 2015–2016 and 2016–2017. Specifically, the number of internet only sections increased from 540 in 2015–2016 to 638 in 2016–2017, an increase of 98 (18%). In contrast, the number of lecture only sections decreased from 2,429 in 2015–2016 to 2,415 in 2016–2017, a decrease of 14 (0.6%).

Table 1: Number and Percent of Sections by Instructional Method from 2012–2013 to 2016–2017 for Sections where a GOR was Earned.

| Instructional Method | 2012-2013 | | 2013-2014 | | 2014-2015 | | 2015-2016 | | 2016-2017 | |
|----------------------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| | # | % | # | % | # | % | # | % | # | % |
| Lecture Only | 1,870 | 55.2 | 2,124 | 55.6 | 2,368 | 52.1 | 2,429 | 49.7 | 2,415 | 47.8 |
| Lab Only | 301 | 8.9 | 333 | 8.7 | 540 | 11.9 | 630 | 12.9 | 663 | 13.1 |
| Internet Only | 244 | 7.2 | 312 | 8.2 | 440 | 9.7 | 540 | 11.1 | 638 | 12.6 |
| Hybrid | 135 | 4.0 | 139 | 3.6 | 183 | 4.0 | 236 | 4.8 | 274 | 5.4 |
| Lecture/Lab | 753 | 22.2 | 822 | 21.5 | 924 | 20.3 | 968 | 19.8 | 990 | 19.6 |
| Work Experience | 20 | 0.6 | 19 | 0.5 | 16 | 0.4 | 16 | 0.3 | 18 | 0.4 |
| Independent Study | 33 | 1.0 | 36 | 0.9 | 40 | 0.9 | 27 | 0.6 | 21 | 0.4 |
| Field Experience | 4 | 0.1 | 5 | 0.1 | 3 | 0.1 | 4 | 0.1 | 3 | 0.1 |
| Clinical | 19 | 0.6 | 10 | 0.3 | 19 | 0.4 | 22 | 0.5 | 24 | 0.5 |
| Tutoring | 0 | 0.0 | 21 | 0.5 | 0 | 0.0 | 4 | 0.1 | 1 | 0.0 |
| Two way video/audio | 9 | 0.3 | 2 | 0.1 | 10 | 0.2 | 10 | 0.2 | 5 | 0.1 |
| Total | 3,388 | 100.0 | 4,018 | 100.0 | 4,543 | 100.0 | 4,886 | 100.0 | 5,052 | 100.0 |

Note: The sections where students did not earn a GOR are excluded from this table; accordingly, the number of sections displayed in Table 1 will be lower than the actual number of sections offered by CHC.

The number of GOR in distance education (i.e. both internet only and hybrid) sections has increased from 11,947 in 2012–2013 to 24,538 in 2016–2017, a 105% increase (see Tables 2 and 3 on next page). In contrast, GOR in lecture only sections increased 0.1% from 2012–2013 to 2016–2017. Equally important, the success rate in all types of distance education sections has increased from 62% in 2012–2013 to 64% in 2016–2017 (see Figure 1 on next page). Moreover, hybrid sections have a consistently higher success rate (65%) than internet only sections (64%) although the difference in success rates between the two instructional methods has decreased over the last two academic years. **A limitation to comparing student performance in hybrid and internet sections is that the comparison does not control for term, course, and instructor.**

Figure 1: SBCCD Internet Only and Hybrid Success Rates from 2012–2013 to 2016–2017.

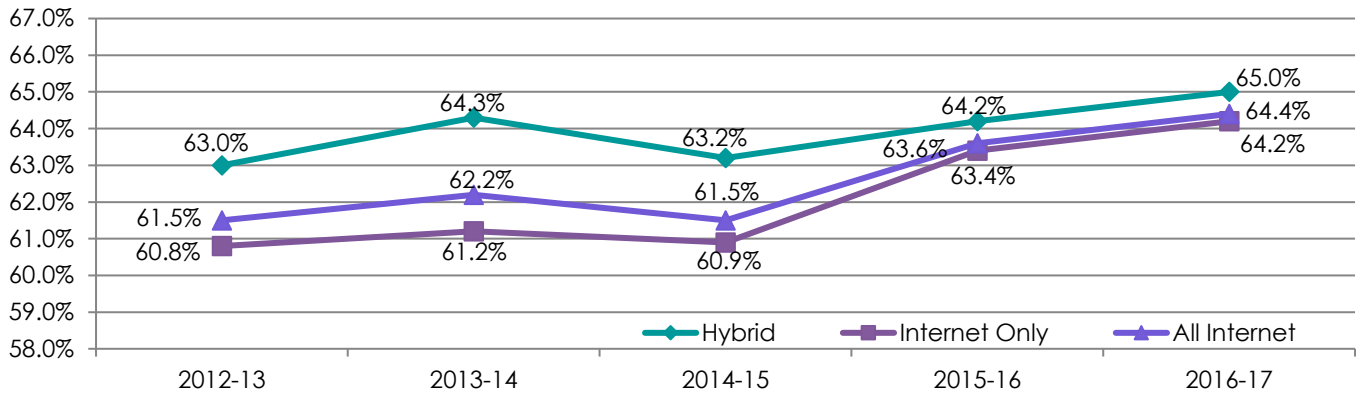


Table 2: SBCCD Success Rate by Instructional Method from 2012–2013 to 2016–2017.

| Instructional Method | 2012–2013 | | | 2013–2014 | | | 2014–2015 | | | 2015–2016 | | | 2016–2017 | | |
|----------------------|---------------|----------------|-------------|---------------|----------------|-------------|---------------|----------------|-------------|---------------|----------------|-------------|---------------|----------------|-------------|
| | # | N | % | # | N | % | # | N | % | # | N | % | # | N | % |
| Lecture Only | 44,675 | 63,561 | 70.3 | 46,219 | 67,311 | 68.7 | 47,665 | 70,052 | 68.0 | 46,422 | 67,275 | 69.0 | 44,482 | 63,638 | 69.9 |
| Lab Only | 6,110 | 7,583 | 80.6 | 5,878 | 7,345 | 80.0 | 5,957 | 7,514 | 79.3 | 5,958 | 7,240 | 82.3 | 5,382 | 7,514 | 80.6 |
| Internet Only | 4,843 | 7,963 | 60.8 | 5,902 | 9,641 | 61.2 | 8,023 | 13,172 | 60.9 | 10,086 | 15,907 | 63.4 | 11,530 | 17,963 | 64.2 |
| Hybrid | 2,510 | 3,984 | 63.0 | 2,667 | 4,146 | 64.3 | 3,242 | 5,133 | 63.2 | 3,875 | 6,032 | 64.2 | 4,273 | 6,575 | 65.0 |
| Lecture/Lab | 12,111 | 16,428 | 73.7 | 12,162 | 16,904 | 71.9 | 12,364 | 17,132 | 72.2 | 12,669 | 17,003 | 74.5 | 12,701 | 17,019 | 74.6 |
| Work Experience | 194 | 262 | 74.1 | 172 | 232 | 74.1 | 134 | 183 | 73.2 | 114 | 130 | 87.7 | 130 | 154 | 84.4 |
| Independent Study | 85 | 97 | 87.6 | 72 | 83 | 86.7 | 88 | 100 | 88.0 | 50 | 52 | 96.2 | 52 | 53 | 98.1 |
| Field Experience | 16 | 20 | 80.0 | 45 | 60 | 75.0 | 27 | 33 | 81.8 | 50 | 58 | 86.2 | 26 | 33 | 78.8 |
| Clinical | 382 | 481 | 79.4 | 219 | 324 | 67.6 | 385 | 483 | 79.7 | 372 | 485 | 76.7 | 416 | 513 | 81.1 |
| Tutoring | | | | 189 | 249 | 75.9 | | | | 46 | 65 | 70.8 | 0 | 1 | 0.0 |
| Two-Way Video/Audio | 40 | 53 | 75.5 | 37 | 56 | 66.1 | 70 | 106 | 66.0 | 43 | 57 | 75.4 | 12 | 18 | 66.7 |
| Total | 70,966 | 100,432 | 70.7 | 73,562 | 106,351 | 69.2 | 77,955 | 113,908 | 68.4 | 79,685 | 114,304 | 69.7 | 79,004 | 112,641 | 70.1 |

Note. The blue font refers to distance education sections, “#” refers to the number of retained students, “N” refers to the number of GOR, and “%” is # divided by N.

Table 3: SBCCD Completion Rate by Instructional Method from 2012–2013 to 2016–2017.

| Instructional Method | 2012–2013 | | | 2013–2014 | | | 2014–2015 | | | 2015–2016 | | | 2016–2017 | | |
|----------------------|---------------|----------------|-------------|---------------|----------------|-------------|----------------|----------------|-------------|---------------|----------------|-------------|----------------|----------------|-------------|
| | # | N | % | # | N | % | # | N | % | # | N | % | # | N | % |
| Lecture Only | 57,468 | 63,561 | 90.4 | 60,604 | 67,311 | 90.0 | 62,751 | 70,052 | 89.6 | 60,404 | 67,275 | 89.9 | 57,342 | 63,638 | 90.1 |
| Lab Only | 6,963 | 7,583 | 91.8 | 6,701 | 7,345 | 91.2 | 6,879 | 7,514 | 91.5 | 6,678 | 7,240 | 92.2 | 6,147 | 7,514 | 92.1 |
| Internet Only | 6,712 | 7,963 | 84.3 | 8,131 | 9,641 | 84.3 | 10,867 | 13,172 | 82.5 | 13,514 | 15,907 | 85.0 | 15,207 | 17,963 | 84.7 |
| Hybrid | 3,430 | 3,984 | 86.1 | 3,559 | 4,146 | 85.8 | 4,402 | 5,133 | 85.8 | 5,150 | 6,032 | 85.4 | 5,678 | 6,575 | 86.4 |
| Lecture/Lab | 14,673 | 16,428 | 89.3 | 14,997 | 16,904 | 88.7 | 15,171 | 17,132 | 88.6 | 15,282 | 17,003 | 89.9 | 15,285 | 17,019 | 89.8 |
| Work Experience | 249 | 262 | 95.0 | 218 | 232 | 94.0 | 169 | 183 | 92.3 | 122 | 130 | 93.8 | 141 | 154 | 91.6 |
| Independent Study | 92 | 97 | 94.8 | 80 | 83 | 96.4 | 95 | 100 | 95.0 | 51 | 52 | 98.1 | 53 | 53 | 100 |
| Field Experience | 20 | 20 | 100 | 54 | 60 | 90.0 | 33 | 33 | 100 | 58 | 58 | 100 | 33 | 33 | 100 |
| Clinical | 406 | 481 | 84.4 | 239 | 324 | 73.8 | 409 | 483 | 84.7 | 396 | 485 | 81.6 | 436 | 513 | 85.0 |
| Tutoring | | | | 218 | 249 | 87.6 | | | | 51 | 65 | 78.5 | 0 | 1 | 0.0 |
| Two-Way Video/Audio | 46 | 53 | 86.8 | 45 | 56 | 80.4 | 96 | 106 | 90.6 | 45 | 57 | 78.9 | 12 | 18 | 66.7 |
| Total | 90,059 | 100,432 | 89.7 | 94,846 | 106,351 | 89.2 | 100,872 | 113,908 | 88.6 | 94,846 | 114,304 | 89.0 | 100,872 | 112,641 | 89.1 |

Note. The blue font refers to distance education sections, “#” refers to the number of retained students, “N” refers to the number of GOR, and “%” is # divided by N.

Figure 2 and Table 4 indicate that when controlling for term, course, and instructor the overall five year success rate for lecture sections (69%) is slightly higher (ES = .15) than for distance education sections (62%). However, in 2016–2017, students in distance education sections were statistically as likely ($p = .573$ and $ES = -.01$) to successfully complete the course (65%) compared to students in lecture sections (66%) taught by the same instructor in the same semester. Students in lecture sections were statistically significantly ($p < .001$) more likely to complete the course (91%) than students in a distance education section (85%) taught by the same instructor in the same semester, although the difference is not substantial. **A limitation of these findings is that not all online courses are included in the comparison because many of the online instructors did not teach the same lecture course in the same term in which they taught the online course.**

Figure 2: SBCCD Success Rates from 2012–2013 to 2016–2017 by Lecture and Distance Education Sections taught by the Same Instructor in the Same Semester.

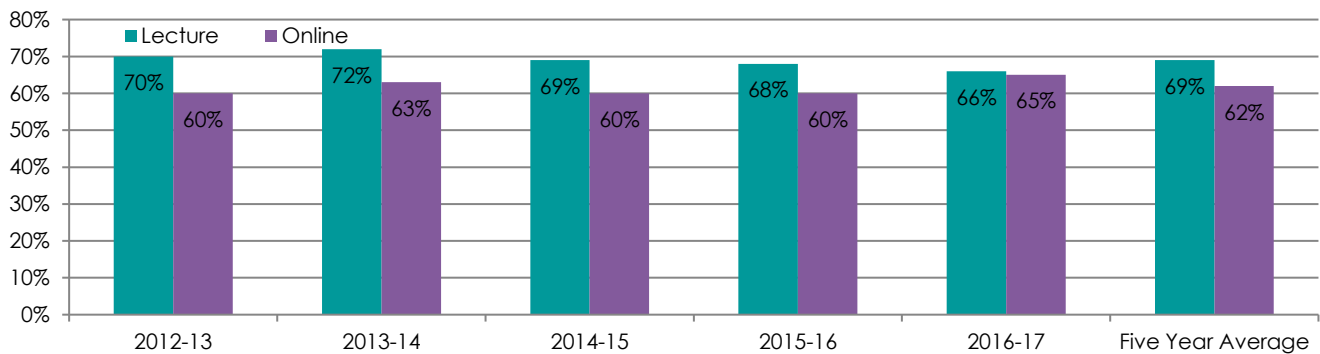


Table 4: SBCCD Success and Completion Rates from 2012–2013 to 2016–2017, Effect Sizes, and P-Values by Lecture and Distance Education Sections taught by the Same Instructor in the Same Semester.

| Academic Year | Lecture Sections | | | Distance Education Sections | | | ES* | P-Value** |
|-------------------|------------------|-------|------|-----------------------------|-------|------|------|-----------|
| | # | N | % | # | N | % | | |
| Success | | | | | | | | |
| 2012–2013 | 2,535 | 3,629 | 69.9 | 1,319 | 2,211 | 59.7 | -.22 | < .001*** |
| 2013–2014 | 2,543 | 3,511 | 72.4 | 1,801 | 2,850 | 63.2 | -.20 | < .001*** |
| 2014–2015 | 2,141 | 3,104 | 69.0 | 1,631 | 2,721 | 59.9 | -.19 | < .001*** |
| 2015–2016 | 2,868 | 4,220 | 68.0 | 2,450 | 4,072 | 60.2 | -.16 | < .001*** |
| 2016–2017 | 2,333 | 3,560 | 65.5 | 2,231 | 3,438 | 64.9 | -.01 | 0.573 |
| Five-Year Average | 2,484 | 3,605 | 68.9 | 1,886 | 3,058 | 61.7 | -.15 | < .001*** |
| Completion | | | | | | | | |
| 2012–2013 | 3,310 | 3,629 | 91.2 | 1,843 | 2,211 | 83.4 | -.24 | < .001*** |
| 2013–2014 | 3,215 | 3,511 | 91.6 | 2,447 | 2,850 | 85.9 | -.18 | < .001*** |
| 2014–2015 | 2,786 | 3,104 | 89.8 | 2,253 | 2,721 | 82.8 | -.20 | < .001*** |
| 2015–2016 | 3,822 | 4,220 | 90.6 | 3,401 | 4,072 | 83.5 | -.21 | < .001*** |
| 2016–2017 | 3,221 | 3,560 | 90.5 | 2,926 | 3,438 | 85.1 | -.16 | < .001*** |
| Five-Year Average | 3,271 | 3,605 | 90.7 | 2,574 | 3,058 | 84.2 | -.20 | < .001*** |

* A .20 effect size corresponds to a Pearson r of .10. The effect size represents the magnitude of the difference between the target and the baseline measure. Using an effect size increases the likelihood that the difference is not only statistically significant but practical as well.

**The P-Value is an indication of statistical significance. Statistical significance exists when the P-value is less than .05 indicating that the difference between the groups is likely to be due to chance only 5 out of 100 times. It is important to note that the p-value is influenced by the number of cases.

***The difference is statistically significant.

Methodology

Table 1 illustrates the number and percent of sections by instructional method from 2012–2013 to 2016 – 2017 for sections where a GOR was earned. It is important to note that sections where students did not earn a GOR are excluded from this table. Accordingly, the number of sections displayed in Table 1 will be lower than the actual number of sections offered by the District Colleges.

Tables 2 and 3 display the success and completion rates for SBCCD by instruction method from 2012– 2013 to 2016– 2017. There are eleven methods of instruction identified in Tables 2 and 3: lecture only, lab only, internet only, hybrid (a combination of internet and another instructional method—usually lecture), lecture/lab, work experience, independent study, field experience, clinical, tutoring, and two-way interactive video and audio. The work experience, independent study, field experience, clinical, tutoring, and two-way interactive video and audio instructional methods also may have included other instructional methods that were combined with these methods. **The internet and hybrid instruction methods are the methods often referred to as distance education or online courses.**

When examining the success and completion rates (formally retention) illustrated in Tables 2 and 3 it is essential **to not compare** the success and completion rates of different instructional methods because each method does not control for instructor and discipline and could be misleading. Comparing the success and completion rates longitudinally is more methodologically sound. In addition, a second more methodologically sound method than comparing across instructional methods is to compare success and completion rates while controlling for instructor, term, and course. Accordingly, Figure 2 and Table 4 illustrate the results of comparing lecture to distance education sections for the same term, course, and instructor. Specifically, if an instructor taught both an online and lecture course within the same term, the performance of students in each of these courses was compared.

Definitions: The number of grades on record (GOR) refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. Success rate is the number of A, B, C, or P grades divided by the number of GOR, and completion rate (formally retention rate) is the number of A, B, C, D, F, P, NP, or I grades divided by the number of GOR. Distance education refers to sections taught using the internet only and hybrid instructional methods.

Effect Size and Statistical Significance. The effect size statistic is commonly used in meta-analyses. A meta-analysis uses quantitative techniques to summarize the findings from a number of studies on a particular topic to determine the average effect of a given technique. One method of interpreting effect size was developed by Jacob Cohen. Jacob Cohen defined "small," "medium," and "large" effect sizes. He explained that an effect size of .20 can be considered small, an effect size of .50 can be considered medium, and an effect size of .80 can be considered large. Effect size is calculated by dividing the difference of the two means by the pooled standard deviation. It is important to mention that the number of students in each group does not influence Effect Size; whereas, when statistical significance is calculated the number of students in each group does influence the significance level (i.e. "p" value being lower than .05). Accordingly, using Cohen as a guide, a substantial effect would be .20 or higher.