



## CHC 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 success and completion rates for CHC courses from 2012–2013 to 2016–2017 by instructional method. In addition, student performance in lecture and distance education sections are compared while controlling for term, course, and instructor.

### Summary of Findings

- The proportion of lecture only sections decreased while lab only and internet only sections increased over the last five years.
- The number of internet only sections increase by 153 (588%) from 2012–2013 to 2016–2017.
- The number of GOR in distance education sections increased by 4,508 (481%) from 2012–2013 to 2016–2017.
- The success rate in distance education sections has increased from 65% in 2012–2013 to 70% in 2016–2017.
- In 2016-2017, students in lecture only sections were slightly more likely to successfully complete the course (74%) than students in distance education sections (71%) taught by the same instructor in the same semester although the difference was neither statistically significant ( $p = .212$ ) nor substantial ( $ES = .06$ ).

### 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 decreased while lab only and internet only sections both increased over the last five years. Specifically, the number of internet only sections increased from 26 sections in 2012–2013 to 179 in 2016–2017, an increase of 153 sections (588%).

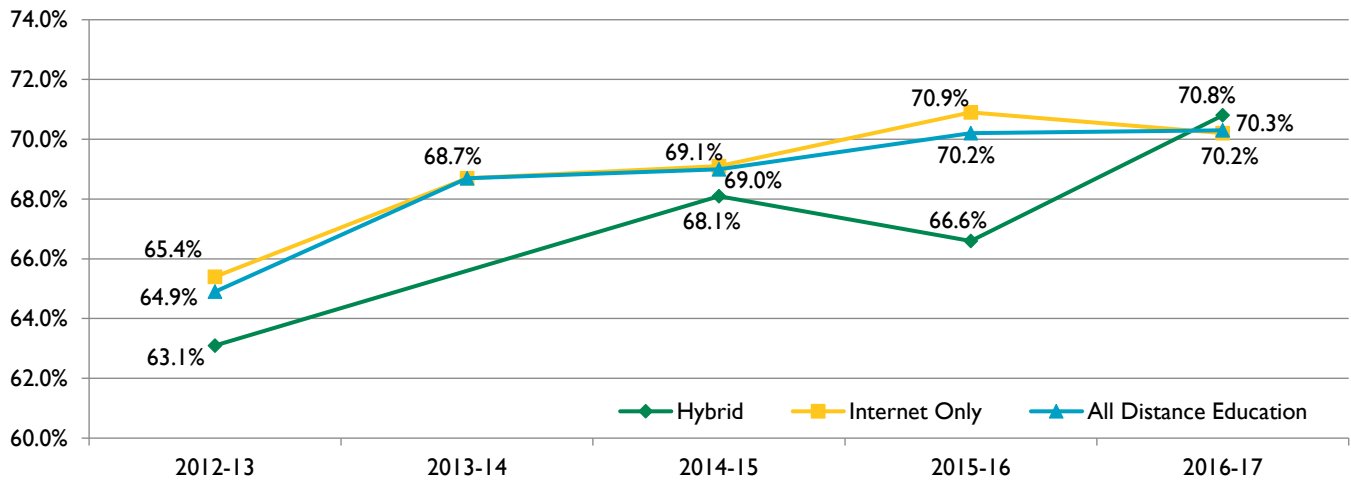
**Table 1: Number and Percent of Sections by Instructional Method from 2012–2013 to 2016–2017 for Sections where a GOR was Earned.**

Instructional Method	2012-2013		2013-2014		2014-2015		2015-2016		2016-2017	
	#	%	#	%	#	%	#	%	#	%
Lecture Only	734	65.6	796	66.1	916	59.9	932	55.2	898	53.4
Lab Only	88	7.9	96	8.0	195	12.7	287	17.0	283	16.8
Internet Only	26	2.3	54	4.5	106	6.9	146	8.6	179	10.6
Hybrid	8	0.7	0	0.0	14	0.9	30	1.8	31	1.8
Lecture/Lab	213	19.0	205	17.0	250	16.3	249	14.7	241	14.3
Work Experience	0	0.0	0	0.0	0	0.0	0	0.0	3	0.2
Independent Study	20	2.0	21	1.7	27	1.8	17	1.0	19	1.1
Field Experience	8	0.7	2	0.2	3	0.2	2	0.1	3	0.2
Clinical	22	2.0	10	0.8	19	1.2	22	1.3	24	1.4
Tutoring	0	0.0	21	1.7	0	0.0	4	0.2	1	0.1
Total	1,119	100.0	1,205	100.0	1,530	100.0	1,689	100.0	1,682	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. internet only and hybrid sections) increased from 937 in 2012–2013 to 5,445 in 2016–2017, a 481% increase (see Tables 2 and 3). In contrast, GOR in lecture only sections decreased by 2.6% from 2012–2013 to 2016–2017. Equally important, the success rate in distance education sections has increased from 65% in 2012–2013 to 70% in 2016–2017 (See Figure 1). The success rate in lecture sections has remained relatively consistent at 73% from 2012–2013 to 2016–2017. **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: CHC Internet Only and Hybrid Success Rates from 2012–2013 to 2016–2017.



Note. Hybrid courses were not offered in 2013-14. Subsequently, the Hybrid point is excluded for 2013-14.

Table 2: CHC 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	16,344	22,455	72.8	17,442	23,979	72.7	17,940	24,441	73.4	16,897	23,174	72.9	15,852	21,872	72.5
Lab Only	1,967	2,524	77.9	1,769	2,266	78.1	2,238	2,848	78.6	2,487	3,089	80.5	2,134	2,714	78.6
Internet Only	471	720	65.4	1,084	1,579	68.7	2,070	2,997	69.1	2,844	4,014	70.9	3,389	4,825	70.2
Hybrid	137	217	63.1				233	342	68.1	429	644	66.6	439	620	70.8
Lecture/Lab	3,260	4,356	74.8	3,203	4,412	72.6	3,594	4,883	73.6	3,436	4,717	72.8	3,680	4,963	74.1
Work Experience													7	10	70.0
Independent Study	47	54	87.0	51	54	94.4	69	76	90.8	30	32	93.8	44	45	97.8
Field Experience	16	20	80.0	2	2	100	27	33	81.8	26	34	76.5	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
Total	22,624	30,827	73.4	23,959	32,865	72.9	26,556	36,103	73.6	26,567	36,254	73.3	25,987	35,596	73.0

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

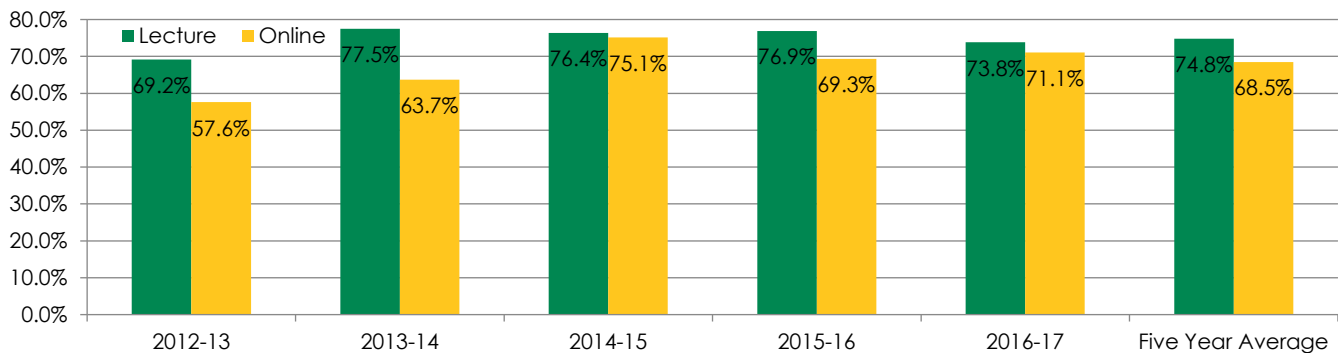
Table 3: CHC Completion Rate by Instructional Method from 2012–2013 to 2016–2017.

Instructional Method	2012–2013			2013–2014			2014–2015			2015–2016			2016–2017		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Lecture Only	20,540	22,455	91.5	21,975	23,979	91.6	22,428	24,441	91.8	21,202	23,174	91.5	20,034	21,872	91.6
Lab Only	2,343	2,524	92.8	2,085	2,266	92.0	2,667	2,848	93.6	2,852	3,089	92.3	2,515	2,714	92.7
Internet Only	622	720	86.4	1,387	1,579	87.8	2,623	2,997	87.5	3,594	4,014	89.5	4,259	4,825	88.3
Hybrid	179	217	82.5				288	342	84.2	560	644	87.0	553	620	89.2
Lecture/Lab	3,966	4,356	91.0	3,924	4,412	88.9	4,352	4,883	89.1	4,236	4,717	89.8	4,473	4,963	90.1
Work Experience													7	10	70.0
Independent Study	50	54	92.6	51	54	94.4	73	76	96.1	31	32	96.9	45	45	100.0
Field Experience	20	20	100.0	2	2	100	33	33	100.0	34	34	100.0	33	33	100.0
Clinical	406	481	84.4	239	324	73.7	409	483	84.7	396	485	81.6	436	513	85.0
Tutoring				218	249	87.5				51	65	78.5	0	1	0.0
Total	20,540	22,455	91.5	21,975	23,979	91.6	22,428	24,441	91.8	32,956	36,254	90.9	32,355	35,596	90.9

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 only sections (75%) is statistically higher ( $p = .01$ ) than distance education sections (69%) although the difference was not substantial ( $ES = .14$ ). Additionally, in 2016-2017, students in lecture only sections were only slightly more likely to successfully complete the course (74%) than students in distance education sections (71%) taught by the same instructor in the same semester although the difference was neither statistically significant ( $p = .212$ ) nor substantial ( $ES = .06$ ). Overall, students in lecture sections were substantially ( $ES = .20$ ) and statistically significantly ( $p < .001$ ) more likely to complete (94%) the course than students in a distance education section (89%) taught by the same instructor in the same semester. **A limitation of these findings is that not all distance education sections 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: CHC 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: CHC 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	%		
<b>Success</b>								
2012–2013	519	750	69.2	215	373	57.6	-.24	< .001***
2013–2014	557	719	77.5	275	432	63.7	-.31	< .001***
2014–2015	650	851	76.4	361	481	75.1	-.03	.588
2015–2016	714	928	76.9	618	892	69.3	-.17	< .001***
2016–2017	635	861	73.8	614	864	71.1	-.06	.212
Five Year Average	615	822	74.8	417	608	68.5	-.14	.010***
<b>Completion</b>								
2012–2013	699	750	93.2	302	373	81.0	-.39	< .001***
2013–2014	680	719	94.6	382	432	88.4	-.23	< .001***
2014–2015	810	851	95.2	433	481	90.0	-.21	.001***
2015–2016	878	928	94.6	382	432	89.7	-.24	< .001***
2016–2017	800	861	92.9	433	481	90.3	-.11	0.075
Five Year Average	773	822	94.1	539	608	88.7	-.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 Crafton Hills College.

Tables 2 and 3 display the success and completion rates for CHC by instructional method from 2012–2013 to 2016–2017. There are ten 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, and tutoring. The work experience, independent study, field experience, clinical, and tutoring 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 delivered 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.