



Research Brief

CHC Distance Education Success and Completion Rates from 2009 – 2010 to 2013 – 2014

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Purpose of Brief

The following brief illustrates the number of sections, grades on record (GOR) earned, and the success and completion rates for CHC courses from 2009 – 2010 to 2013 – 2014 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 proportion of lecture only, lab only, lecture/lab sections, and independent study sections have remained relatively the same in the last five years.
- The number of internet only sections increased from 26 in 2012–13 to 54 in 2013–14, an increase of 28 (108%), and there were no hybrid sections in 2013-14.
- The number of GOR in internet only sections increased from 937 to 1,579 in 2013–14, a 119% increase.
- The success rate in online sections has increased from 65% in 2012–13 to 69% in 2013–14.
- The overall 5-year success rate for lecture (68%) and online sections (64%) is statistically the same.
- In 2013-14, students in lecture courses were substantially (ES = .31) and statistically significantly ($p < .001$) more likely to successfully complete the course (78%) than students in online sections (64%).

Findings

Table 1 illustrates the number and percent of sections by instructional method from 2009 – 2010 to 2013 – 2014 in sections where a grade on record (GOR) was earned. The proportion of lecture only, lab only, lecture/lab sections, and independent study sections have remained relatively the same in the last five years. However, the number of internet only sections doubled and there were no hybrid sections in 2013 - 2014. Specifically, the number of internet only sections increased from 26 in 2012 – 2013 to 54 in 2013 – 2014, an increase of 28 (108%).

Table 1: Number and Percent of Sections by Instructional Method from 2009 – 2010 to 2013 – 2014 for Sections where a Grade on Record was Earned.

Instructional Method	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	#	%	#	%	#	%	#	%	#	%
Lecture Only	763	62.1	767	62.8	692	63.8	734	65.6	796	66.1
Lab Only	111	9.0	106	8.7	92	8.5	88	7.9	96	8.0
Internet Only	45	3.7	41	3.4	25	2.3	26	2.3	54	4.5
Hybrid	8	0.7	9	0.7	12	1.1	8	0.7	0	0.0
Lecture/Lab	241	19.6	255	20.9	209	19.3	213	19.0	205	17.0
Work Experience	7	0.6	0	0.0	0	0.0	0	0.0	0	0.0
Independent Study	12	1.0	15	1.2	15	1.4	20	2.0	21	1.7
Field Experience	5	0.4	6	0.5	4	0.4	8	0.7	2	0.2
Clinical	23	1.9	20	1.6	22	2.0	22	2.0	10	0.8
Tutoring	1	0.1	2	0.2	13	1.2	0	0.0	21	1.7
One-Way Video	12	1.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	1,228	100.0	1,221	100.0	1,084	100.0	1,119	100.0	1,205	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 internet only sections increased from 937 in 2012 – 2013 to 1,579 in 2013 – 2014, a 119% increase (see Tables 2 and 3). In contrast, GOR in lecture only sections increased by 6% from 2012 – 2013 to 2013 – 2014. Equally important, the success rate in online sections has increased from 65% in 2012 – 2013 to 69% in 2013 – 2014 (See Figure 1). The success rate in lecture sections has increased from 70% in 2009 – 2010 to 73% in 2013 – 2014. **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 2009 – 2010 to 2013 – 2014.

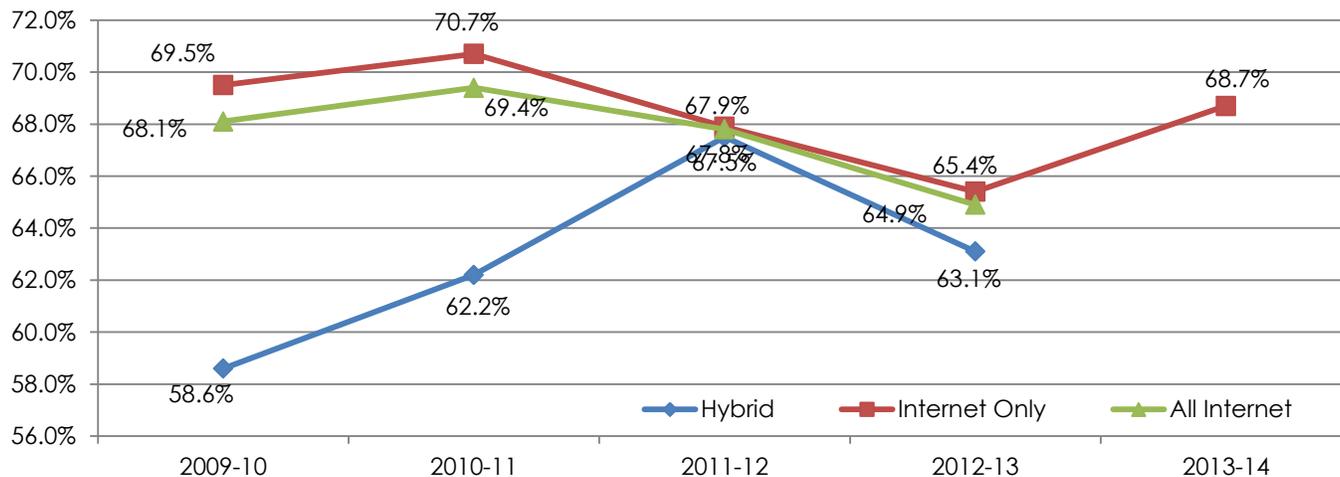


Table 2: CHC Success Rate by Instructional Method from 2009 – 2010 to 2013 – 2014.

Instructional Method	2009 – 2010			2010 – 2011			2011 – 2012			2012 – 2013			2013 – 2014		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Lecture Only	18,013	25,689	70.1	18,948	26,695	71.0	17,362	23,703	73.2	16,344	22,455	72.8	17,442	23,979	72.7
Lab Only	2,299	3,010	76.4	2,307	3,031	76.1	2,109	2,641	79.9	1,967	2,524	77.9	1,769	2,266	78.1
Internet Only	978	1,408	69.5	792	1,120	70.7	539	794	67.9	471	720	65.4	1,084	1,579	68.7
Hybrid	116	198	58.6	130	209	62.2	191	283	67.5	137	217	63.1			
Lecture/Lab	4,424	5,820	76.0	4,390	5,938	73.9	3,579	4,689	76.3	3,260	4,356	74.8	3,203	4,412	72.6
Work Experience	4	7	57.1												
Independent Study	36	46	78.3	70	80	87.5	51	56	91.1	47	54	87.0	51	54	94.4
Field Experience	46	52	88.5	47	55	85.5	19	27	70.4	16	20	80.0	2	2	100
Clinical	463	633	73.1	427	555	76.9	428	514	83.3	382	481	79.4	219	324	67.6
Tutoring	0	5	0.0	117	193	60.6	31	67	46.3				189	249	75.9
One-Way Video	265	607	43.7												
Total	26,644	37,475	71.1	27,228	37,876	71.9	24,309	32,774	74.2	22,624	30,827	73.4	23,959	32,865	72.9

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 2009 – 2010 to 2013 – 2014.

Instructional Method	2009 – 2010			2010 – 2011			2011 – 2012			2012 – 2013			2013 – 2014		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Lecture Only	22,721	25,689	88.4	23,585	26,695	88.3	21,262	23,703	89.7	20,540	22,455	91.5	21,975	23,979	91.6
Lab Only	2,714	3,010	90.2	2,724	3,031	89.9	2,410	2,641	91.3	2,343	2,524	92.8	2,085	2,266	92.0
Internet Only	1,207	1,408	85.7	962	1,120	85.9	657	794	82.7	622	720	86.4	1,387	1,579	87.8
Hybrid	151	198	76.3	164	209	78.5	242	283	85.5	179	217	82.5			
Lecture/Lab	5,191	5,820	89.2	5,267	5,938	88.7	4,175	4,689	89.0	3,966	4,356	91.0	3,924	4,412	88.9
Work Experience	6	7	85.7												
Independent Study	40	46	87.0	77	80	96.3	54	56	96.4	50	54	92.6	51	54	94.4
Field Experience	50	52	96.2	53	55	96.4	26	27	96.3	20	20	100.0	2	2	100
Clinical	512	633	80.9	450	555	81.1	454	514	88.3	406	481	84.4	239	324	73.7
Tutoring	0	5	0.0	186	193	96.4	36	67	53.7				218	249	87.5
One-Way Video	476	607	78.4												
Total	33,068	37,475	88.2	33,468	37,876	88.4	29,316	32,774	89.4	28,128	30,827	91.2	29,881	32,865	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 (68%) and online sections (64%) is statistically the same for both types of instructional methods. However, in 2013 – 2014, students in lecture courses were substantially (ES = .31) and statistically significantly ($p < .001$) more likely to successfully complete the course (78%) than students in online sections (64%) taught by the same instructor in the same semester. Overall, students in lecture courses were substantially (ES = .40) and statistically significantly ($p < .001$) more likely to complete (93%) the course than students in an online course (83%) taught by the same instructor in the same semester. **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: CHC Success Rates from 2009 – 2010 to 2013 – 2014 by Lecture and Online Sections taught by the Same Instructor in the Same Semester.

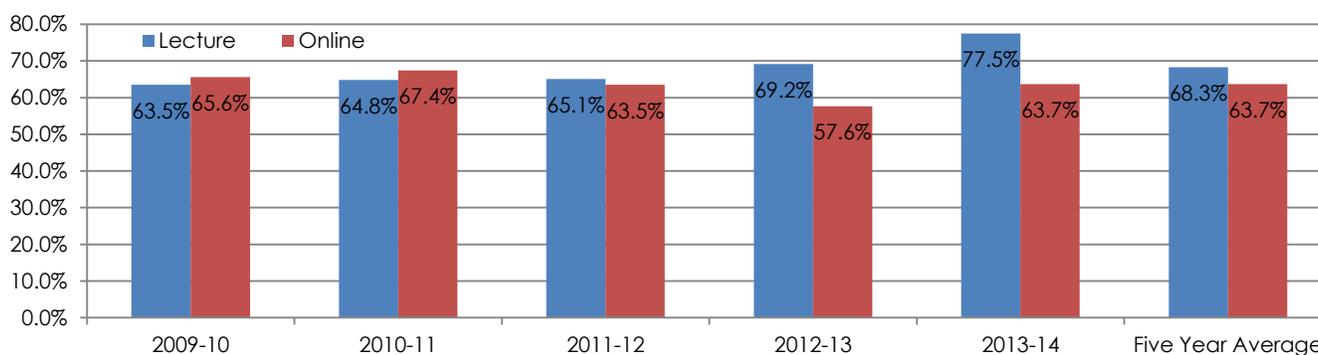


Table 4: CHC Success and Completion Rates from 2009 – 2010 to 2013 – 2014, Effect Sizes, and P-Values by Lecture and Online Sections taught by the Same Instructor in the Same Semester.

Academic Year	Lecture Course			Distance Education Course			ES*	P-Value**
	#	N	%	#	N	%		
Success								
2009 – 2010	413	650	63.5	238	363	65.6	.04	.518
2010 – 2011	518	800	64.8	289	429	67.4	.06	.355
2011 – 2012	254	390	65.1	132	208	63.5	-.03	.687
2012 – 2013	519	750	69.2	215	373	57.6	-.24	< .001***
2013 – 2014	557	719	77.5	275	432	63.7	-.31	< .001***
Five Year Average	452	662	68.3	230	361	63.7	-.10	.143
Completion								
2009 – 2010	582	650	89.5	303	363	83.5	-.18	.008***
2010 – 2011	740	800	92.5	338	429	78.8	-.42	< .001***
2011 – 2012	364	390	93.3	168	208	80.8	-.40	< .001***
2012 – 2013	699	750	93.2	302	373	81.0	-.39	< .001***
2013 – 2014	680	719	94.6	382	432	88.4	-.23	< .001***
Five Year Average	613	662	92.6	299	361	82.8	-.40	< .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 2009 – 2010 to 2013 – 2014 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 instruction method from 2009 – 2010 to 2013 – 2014. 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 one-way video. The work experience, independent study, field experience, clinical, tutoring, and one-way video 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.

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.