

Distance Education Report

A Two Year Comparison of
Online, Hybrid and Face-to-Face
Instructional Delivery Outcomes

Academic Years 2014-15 through 2015-16

Grade Point Averages
Course Completion Rates
Course Success Rates

Table of Contents

Study Background	1
Introduction	1
Statistical Methodology	1
Definitional Standards	1
Testing Framework: Grade Point Average (GPA)	2
Testing Framework: Course Success Rate and Course Completion Rate	3
Selection Criteria and Statistical Software	4
Global Instructional Delivery Comparison	5
Grade Point Average (GPA) by Instructional Delivery: Tables and Chart	6
Course Success Rate by Instructional Delivery: Tables and Chart	8
Course Completion Rate by Instructional Delivery: Tables and Chart	10
Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery	12
Administration of Justice: 111, 151	13
Anthropology 101	15
Art 104	16
Business 120	17
Child Development: 135, 170, 284	18
Computer Information Systems 101	21
English: 71, 114, 115, 116	22
Geography 100	26
History 100	27
Psychology 101	28
Psychology 270 / Sociology 270	29
Reading 158	30
Sociology 101	31
Individual Course Comparisons: Online / Face-to-Face Instructional Delivery	32
Accounting: 101, 102	33
Administration of Justice 161	35

Table of Contents (Cont.)

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Anthropology: 102	36
Art 151	37
Biology 100	38
Business: 121, 140, 183	39
Economics: 101, 102	42
English 220	44
Fire Science 101	45
Health: 101, 204	46
History 101	48
History / Mexican-American Studies: 141, 142	49
Humanities 104	51
Medical Office Professional (MEDOP): 133, 230	52
Music: 105, 106, 107	54
Personal Development 100	57
Philosophy: 101, 103, 120	58
Political Science: 101, 102	61
Psychology: 106, 211, 230, 250, 260	63
Psychology 116 / Sociology 116	68
Sociology: 110, 135	69
Theatre Arts: 100, 101	71

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Math: 45, 60	74
Reading: 54, 56	76
Business: 70, 290	78

Appendix

[80](#)

Course Section and Enrollment Totals: Summer 2014 - Spring 2016	81
---	--------------------

Study Background

Introduction

A two-year comparison of instructional delivery outcomes can provide institutional stakeholders a means for assessing academic outcomes across the online, hybrid¹ and face-to-face course formats. The focus of the report is to objectively assess, through statistical analysis, differences in academic performance across courses with an online component (whether full or partial) and traditional face-to-face classroom learning. This assessment is critical as the identification of outcome disparities within courses with an online component is instrumental to ensuring student success. This analysis focuses on three core academic metrics: “Grade Point Average,” “Course Success Rate,” and “Course Completion Rate.” Each metric reports end-of-term outcomes spanning the 2014-15 through 2015-16 academic years. Statistical testing is conducted for each of the metrics at the course level and for the various course formats. The report is not intended to be an exhaustive assessment; rather, the intent is to provide a concise cross-section of courses and academic outcomes indicative of student performance generally.

Statistical Methodology

Definitional Standards

Research and Planning (RP) Group definitional standards for Course Completion Rate and Course Success Rate are used throughout this report. These definitions are part of an evaluative framework in use among California community college researchers and the California Community College Chancellor’s Office (CCCCO).

Grade Point Average (GPA)

Definition: The average, or mean, obtained by dividing the number of grade points earned by the total number of credit units attempted.

Numerator: Total number of grade points received.

Denominator: Total number of units attempted.

Excluded grade notations: I, IP, MW, NP, P, RD, W

¹ Hybrid instructional delivery is a combination of the online and face-to-face course formats. The online component of this instructional delivery method can range from partial (under 50% - “partially online”) to substantial (50% and over – “substantially online”) in terms of total course time.

Course Success Rate

Definition: Percentage of students in credit coursework who receive a passing/satisfactory grade.

Numerator: A, B, C, P

Denominator: A, B, C, D, F, NP, P, W

Excluded grade notations: I, IP, MW, RD

Course Completion Rate

Definition: Percentage of students in credit coursework who do not withdraw from the course and receive a valid grade.

Numerator: A, B, C, D, F, I, NP, P, RD

Denominator: A, B, C, D, F, I, NP, P, RD, W

Excluded grade notations: IP, MW

Testing Framework

Grade Point Average (GPA)

General Linear Model Univariate Analysis and Bonferroni post-hoc test

For delivery method comparisons involving *Grade Point Average*, the General Linear Model (GLM) univariate testing framework is used for statistical analysis. The GLM testing framework permits the simultaneous testing of two or more factors for overall statistical significance and may encompass a post-hoc testing procedure. For this study, two distinct statistical approaches are used to assess statistical significance in relation to this metric:

- In the case where only **two instructional delivery methods** occur (online/face-to-face and hybrid/face-to-face), the analysis makes use of the F-statistic alone.

This statistical value is sufficient for ascertaining a statistical difference involving a single pairwise comparison. As a consequence, a post-hoc statistical procedure is unnecessary as only two groups are subject to analysis and a statistical difference can be inferred from the F-statistic alone and its associated p-value. In the second approach:

- For the case where all **three instructional delivery methods** are present, the F-statistic is used in combination with the Bonferroni multiple comparisons post-hoc procedure.

When three or more groups are involved in a statistical analysis, the F-statistic alone cannot identify a statistically significant difference for a given paired group. Instead, this computed value serves as an overall measure of statistical significance (that is, it serves as an “omnibus” test). A more complete analysis requires the use of a separate post-hoc statistical procedure—the Bonferroni multiple comparisons test. This post-hoc framework can computationally accommodate three or more pairwise comparisons and adjust for corresponding changes to statistical significance thresholds.

Course Success Rate and Course Completion Rate

Chi-Square (χ^2) method and Bonferroni post-hoc test

The Chi-square test framework is employed for assessing the statistical significance of the *Course Completion Rate* and *Course Success Rate* metrics. The Chi-square procedure measures expected outcomes against observed results and can be used as a standalone test or in conjunction with a post-hoc testing procedure. As grades and instructional delivery method are treated as mutually exclusive classifications in the form of “contingency tables”, this methodology must be employed in order to satisfactorily measure differences between expected and actual outcomes with respect to course completion and success.

As with the earlier grade point average testing framework, two distinct statistical approaches are needed to accommodate the various combination of instructional methods in relation to grade outcome. Unlike the earlier framework, the Pearson Chi-square (χ^2) testing procedure requires that the categorized data undergo both an omnibus and post-hoc test to determine statistical significance. This is because the Pearson Chi-square contingency table involves categorical counts, which does not permit an immediate determination of differences between groups. As a consequence, table counts must be converted to percentages and utilized in a separate statistical test to accurately identify significant statistical differences.

- When only ***two instructional delivery methods*** occur (online/face-to-face and hybrid/face-to-face), the analysis combines the Pearson Chi-square statistic with the two-proportions Z-test (the latter is mathematically equivalent to a Bonferroni multiple comparisons procedure for two groups).

- In the case where all **three instructional delivery methods** are present, the Pearson Chi-square-statistic is used in combination with the Bonferroni multiple comparisons post-hoc test.

In an effort to facilitate the readability of this report, statistically significant results involving delivery methods are highlighted **in green** to indicate a statistical difference. This highlighting convention is intended to identify an overall significant difference and, when applicable, a statistical difference for a given post-hoc test. In the case of a three way analysis, two instructional delivery methods are sometimes highlighted and are intended to indicate a concurrent statistical significance when contrasted to the (non-highlighted) comparison subgroup. Examination of the letter subscripts (a, b, and c) within the multiple comparisons area of the table will also assist in the determination of the statistical relationships between delivery methods.

Selection Criteria and Statistical Software

Credit courses are the basis for delivery method comparisons. Non-credit coursework comparisons are excluded from this study. Course comparisons contained within this study are not intended to be a comprehensive analysis of all possible online, hybrid and face-to-face comparison combinations. To ensure statistical validity, two decision criteria were utilized in the selection of courses, specifically:

Criterion one: Total course enrollments in any given course format (online, hybrid, and face-to-face) must have achieved a threshold of *at least 60 students*.

Criterion two: *Three or more course sections* must have been offered during the two year period under study. In those cases where the second criterion is not met, the course format below the aforementioned threshold is excluded from comparison.

Additionally, report brevity was a consideration in the selection of instructional method comparisons; therefore, not all academic subject areas were chosen for analysis. Reported statistical results (General Linear Model, Chi-square methodology, and Bonferroni post-hoc multiple comparisons) were generated using IBM's Statistical Software Package for the Social Sciences (SPSS) software package.

Global Instructional Delivery Comparison

Grade Point Average (GPA) by Instructional Delivery: Tables and Chart

Tests of Between-Subjects Effects: Summer 2014 – Spring 2016					
Dependent Variable: GPA					
Source	Sum of Squares	df	Mean Square	F	Significance
Corrected Model	254.965	2	127.482	73.645	.000
Intercept	421924.992	1	421924.992	243739.408	.000
Delivery Method	254.965	2	127.482	73.645	.000
Error	340651.509	196789	1.731		
Total	1757147.000	196792			
Corrected Total	340906.474	196791			

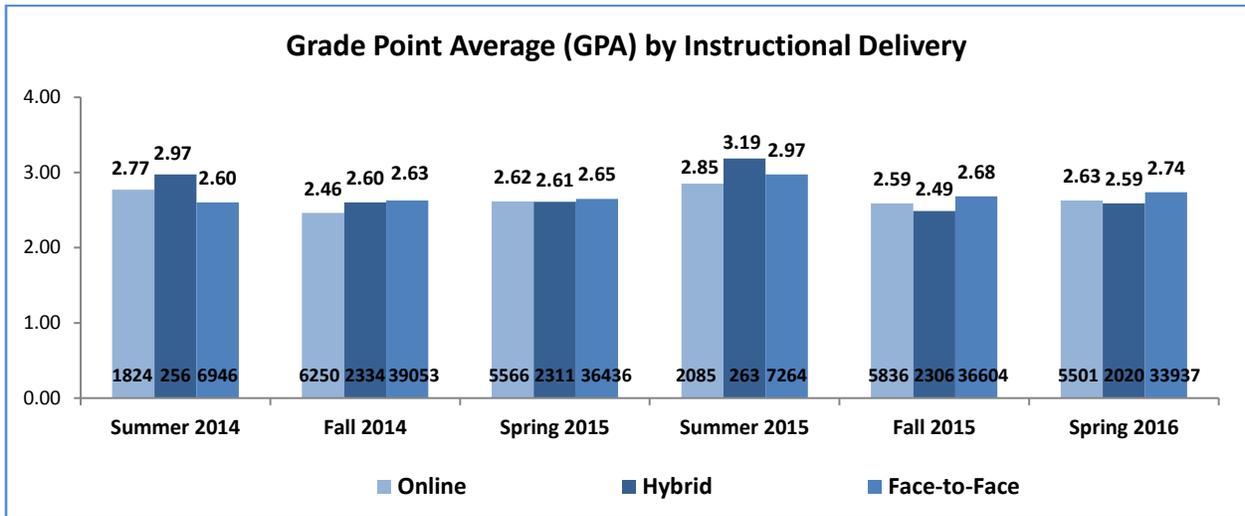
Statistically significant result(s) at the .05 level in green.

Descriptive Statistics: Summer 2014 – Spring 2016			
Dependent Variable: GPA			
Delivery Mode	Mean	Std. Deviation	N
Online Courses	2.61	1.424	27062
Hybrid Courses	2.61	1.420	9490
Face-to-Face Courses	2.70	1.290	160240
Total	2.68	1.316	196792

Tests of Between-Subjects Effects: Summer 2014 – Spring 2016						
Dependent Variable: GPA						
Bonferroni Post-hoc Testing Methodology						
(I) Delivery Method	(J) Delivery Method	Mean Difference (I - J)	Standard. Error	Significance	95% Confidence Interval	
					Lower Bound	Upper Bound
Online Courses	Face-to-Face Courses	-.09	.009	.000	-.11	-.07
Hybrid Courses	Online Courses	.01	.016	1.000	-.03	.04
Face-to-Face Courses	Hybrid Courses	.09	.014	.000	.05	.12

Statistically significant result(s) at the .05 level in green.

Global Instructional Delivery Comparison



Grade Point Average (GPA) by Instructional Delivery								
Term	Instructional Delivery Method						Overall	
	Online Courses		Hybrid Courses		Face-to-Face Courses		GPA	End-of-Term Totals
	GPA	End-of-Term Totals	GPA	End-of-Term Totals	GPA	End-of-Term Totals		
Summer 2014	2.77	1824	2.97	256	2.60	6946	2.65	9026
Fall 2014	2.46	6250	2.60	2334	2.63	39053	2.61	47637
Spring 2015	2.62	5566	2.61	2311	2.65	36436	2.64	44313
Summer 2015	2.85	2085	3.19	263	2.97	7264	2.95	9612
Fall 2015	2.59	5836	2.49	2306	2.68	36604	2.66	44746
Spring 2016	2.63	5501	2.59	2020	2.74	33937	2.72	41458

Course Success Rate by Instructional Delivery: Tables and Chart

Chi-Square Test			
	Value	df	Significance
Pearson Chi-square	1096.234	2	.000
N of Valid Cases	244769		

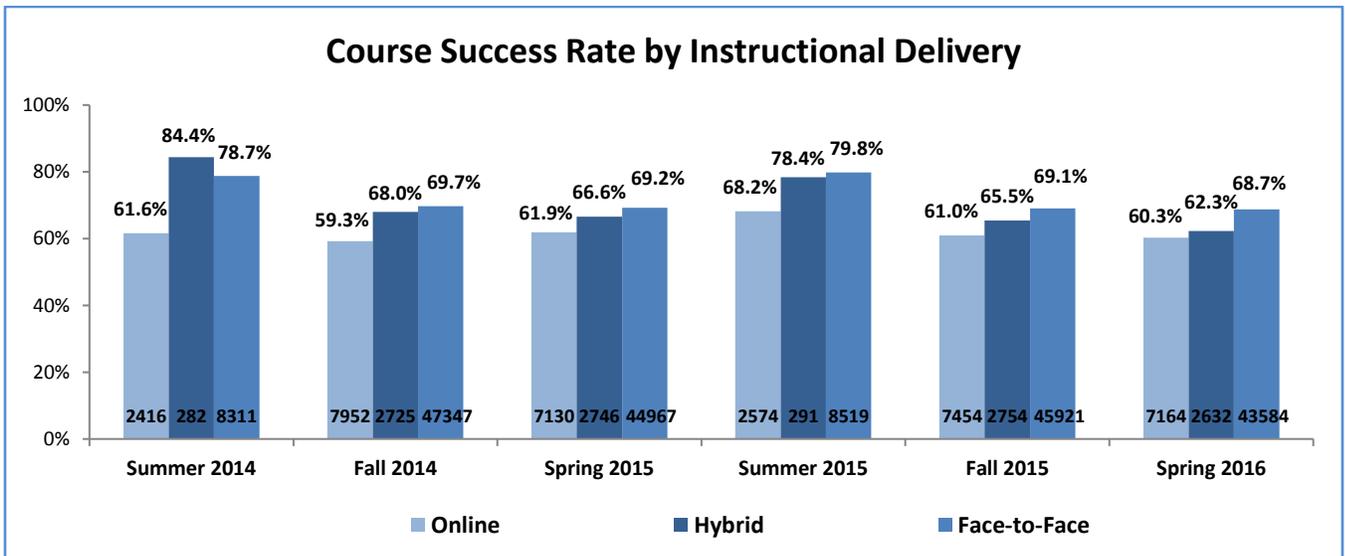
Statistically significant result(s) at the .05 level in green.

Course Success Rate by Instructional Delivery					
Summer 2014 – Spring 2016					
		Instructional Delivery Method ^{*,**}			
		Online	Hybrid	Face-to-Face	Total
	Count	Courses	Courses	Courses	Courses
Overall Course Success Rate	Count	21239 ^a	7589 ^b	139155 ^c	167983
	% within Delivery Method	61.2%	66.4%	70.1%	68.6%
Total	Count	34690	11430	198649	244769
	% within Delivery Method	100.0%	100.0%	100.0%	100.0%

* Unmatched subscript letters denote *Instructional Delivery Method* categories whose column proportions differ statistically from each other.

** Multiple comparisons procedure (Bonferroni).

Statistically significant result(s) at the .05 level in green.



Global Instructional Delivery Comparison

Course Success Rate by Instructional Delivery								
Term	Instructional Delivery Method						Overall	
	Online Courses		Hybrid Courses		Face-to-Face Courses		Course Success Rates	End-of-Term Totals
	Course Success Rates	End-of-Term Totals	Course Success Rates	End-of-Term Totals	Course Success Rates	End-of-Term Totals		
Summer 2014	61.6%	2416	84.4%	282	78.7%	8311	75.1%	11009
Fall 2014	59.3%	7952	68.0%	2725	69.7%	47347	68.2%	58024
Spring 2015	61.9%	7130	66.6%	2746	69.2%	44967	68.1%	54843
Summer 2015	68.2%	2574	78.4%	291	79.8%	8519	77.2%	11384
Fall 2015	61.0%	7454	65.5%	2754	69.1%	45921	67.8%	56129
Spring 2016	60.3%	7164	62.3%	2632	68.7%	43584	67.3%	53380

Course Completion Rate by Instructional Delivery: Tables and Chart

Chi-Square Test			
	Value	df	Significance
Pearson Chi-square	963.787	2	.000
N of Valid Cases	244769		

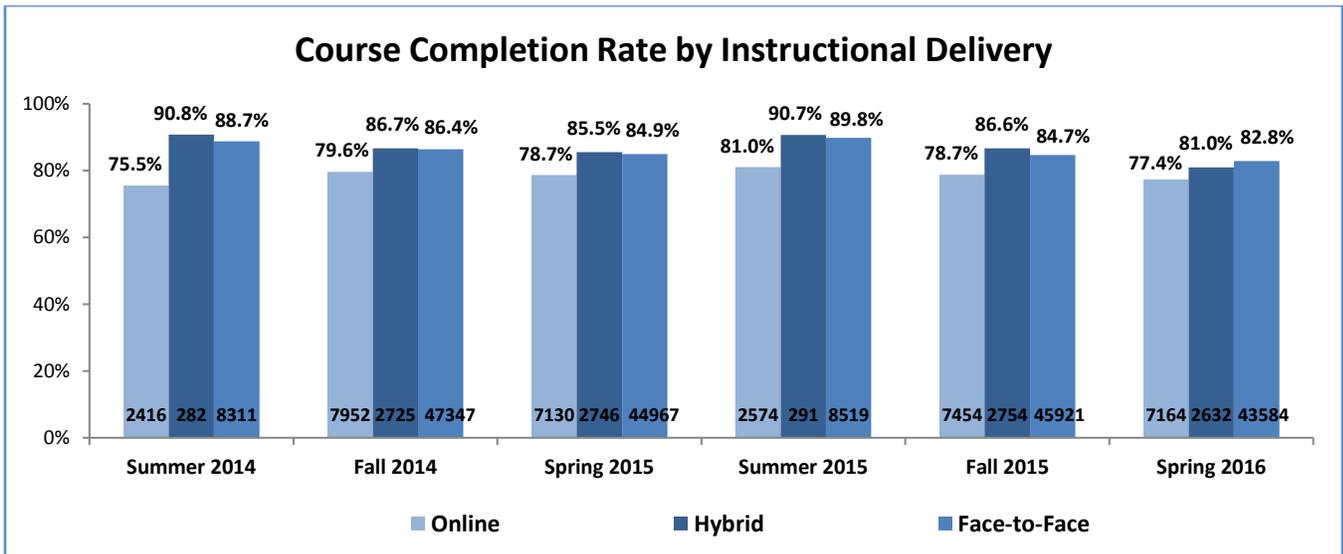
Statistically significant result(s) at the .05 level in green.

Course Completion Rate by Instructional Delivery Summer 2014 – Spring 2016					
		Instructional Delivery Method ^{*,**}			
		Online	Hybrid	Face-to-Face	Total
		Courses	Courses	Courses	
Overall Course Completion Rate	Count	27264 _a	9749 _b	169136 _b	206149
	% within Delivery Method	78.6%	85.3%	85.1%	84.2%
Total	Count	34690	11430	198649	244769
	% within Delivery Method	100.0%	100.0%	100.0%	100.0%

* Unmatched subscript letters denote *Instructional Delivery Method* categories whose column proportions differ statistically from each other.

** Multiple comparisons procedure (Bonferroni).

Statistically significant result(s) at the .05 level in green.



Global Instructional Delivery Comparison

Course Completion Rate by Instructional Delivery								
Term	Instructional Delivery Method						Overall	
	Online Courses		Hybrid Courses		Face-to-Face Courses		Course Completion Rates	End-of-Term Totals
	Course Completion Rates	End-of-Term Totals	Course Completion Rates	End-of-Term Totals	Course Completion Rates	End-of-Term Totals		
Summer 2014	75.5%	2416	90.8%	282	88.7%	8311	85.9%	11009
Fall 2014	79.6%	7952	86.7%	2725	86.4%	47347	85.5%	58024
Spring 2015	78.7%	7130	85.5%	2746	84.9%	44967	84.1%	54843
Summer 2015	81.0%	2574	90.7%	291	89.8%	8519	87.9%	11384
Fall 2015	78.7%	7454	86.6%	2754	84.7%	45921	84.0%	56129
Spring 2016	77.4%	7164	81.0%	2632	82.8%	43584	82.0%	53380

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Administration of Justice: 111, 151

Anthropology 101

Art 104

Business 120

Child Development: 135, 170, 284

Computer Information Systems 101

English: 71, 114, 115, 116

Geography 100

History 100

Psychology 101

Psychology 270 / Sociology 270

Reading 158

Sociology 101

Administration of Justice 111						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.23	1.442	256			
Hybrid Courses	2.18	1.324	285			
Face-to-Face Courses	2.85	1.158	1294			
Total	2.66	1.262	1835			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				53.125	1835	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.62	.084	.000	Statistically significant	
Hybrid Courses	Online Courses	-.06	.106	1.000		
Face-to-Face Courses	Hybrid Courses	.67	.080	.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			100.481	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	58.3%	64.1%	81.7%	75.3%	Statistically significant	
	182a	205a	1137b	1524		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			36.973	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	82.1%	89.1%	93.0%	90.7%	Statistically significant	
	256a	285b	1294b	1835		

N = 2024

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Administration of Justice 151						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ Multiple comparison (Bonferroni) Pearson Chi-square statistic/ Multiple comparison (Bonferroni) 		
Online Courses	2.16	1.423	335			
Hybrid Courses	1.93	1.451	138			
Face-to-Face Courses	2.11	1.436	165			
Total	2.10	1.433	638			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				1.168	638	.312
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.05	.136	1.000	<i>Not statistically significant</i>	
Hybrid Courses	Online Courses	-.22	.145	.386		
Face-to-Face Courses	Hybrid Courses	.17	.165	.875		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			.191	2	.909	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	61.0%	58.9%	60.7%	60.5%	<i>Not statistically significant</i>	
	228a	86a	108a	422		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			3.781	2	.151	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	89.6%	94.5%	92.7%	91.4%	<i>Not statistically significant</i>	
	335a	138a	165a	638		

N = 698

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Anthropology 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ Multiple comparison (Bonferroni) Pearson Chi-square statistic/ Multiple comparison (Bonferroni) 		
Online Courses	1.84	1.281	146			
Hybrid Courses	1.86	1.268	79			
Face-to-Face Courses	1.88	1.168	831			
Total	1.87	1.191	1056			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				.083	1056	.920
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.04	.107	1.000	Not statistically significant	
Hybrid Courses	Online Courses	.03	.166	1.000		
Face-to-Face Courses	Hybrid Courses	.02	.140	1.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			7.675	2	.022	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	41.9%	58.7%	48.2%	47.8%	Statistically significant	
	99a	54b	551a, b	704		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			20.054	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	62.3%	85.9%	72.7%	71.9%	Statistically significant	
	147a	79b	832c	1058		

N = 1472

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Art 104						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	3.05	1.236	578			
Hybrid Courses	2.46	1.517	312			
Face-to-Face Courses	2.96	1.162	2233			
Total	2.93	1.226	3123			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				27.365	3123	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.09	.057	.351	Statistically significant	
Hybrid Courses	Online Courses	-.60	.085	.000		
Face-to-Face Courses	Hybrid Courses	.51	.073	.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			71.803	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.2%	60.2%	79.5%	77.4%	Statistically significant	
	506a	228b	1986a	2720		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			20.180	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	90.6%	82.3%	89.7%	89.1%	Statistically significant	
	579a	312b	2240a	3131		

N = 3516

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Business 120						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.41	1.407	222			
Hybrid Courses	2.47	1.616	140			
Face-to-Face Courses	2.14	1.565	221			
Total	2.32	1.524	583			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				2.629	583	.073
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.27	.144	.187	<i>Not statistically significant</i>	
Hybrid Courses	Online Courses	.06	.164	1.000		
Face-to-Face Courses	Hybrid Courses	-.33	.164	.132		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			5.921	2	.052	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	60.9%	51.3%	52.1%	55.2%	<i>Not statistically significant</i>	
	170a	97a	139a	406		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			7.100	2	.029	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.6%	74.6%	84.6%	80.1%	<i>Statistically significant</i>	
	222a, b	141b	226a	589		

N = 735

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Child Development 135						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ Multiple comparison (Bonferroni) Pearson Chi-square statistic/ Multiple comparison (Bonferroni) 		
Online Courses	2.78	1.486	216			
Hybrid Courses	3.32	1.257	92			
Face-to-Face Courses	2.83	1.167	114			
Total	2.91	1.371	422			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				5.232	422	.006
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.05	.157	1.000	<i>Statistically significant</i>	
Hybrid Courses	Online Courses	.53	.169	.005		
Face-to-Face Courses	Hybrid Courses	-.48	.190	.035		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			11.903	2	.003	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	64.2%	78.3%	78.0%	70.7%	<i>Statistically significant</i>	
	174 _a	83 _b	103 _b	360		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			4.849	2	.089	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.7%	87.7%	86.4%	83.1%	<i>Not statistically significant</i>	
	216 _a	93 _a	114 _a	423		

N = 509

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Child Development 170						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ Multiple comparison (Bonferroni) Pearson Chi-square statistic/ Multiple comparison (Bonferroni) 		
Online Courses	2.45	1.540	801			
Hybrid Courses	2.52	1.546	2103			
Face-to-Face Courses	3.32	1.018	94			
Total	2.53	1.537	2998			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				13.612	2998	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.87	.167	.000	Statistically significant	
Hybrid Courses	Online Courses	.08	.064	.713		
Face-to-Face Courses	Hybrid Courses	.79	.161	.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			25.885	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	62.9%	68.0%	88.5%	66.9%	Statistically significant	
	586a	1167b	77c	1830		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			14.572	2	.001	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	86.0%	89.9%	96.6%	88.8%	Statistically significant	
	801a	1543b	84b	2428		

N = 2734

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Child Development 284						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	3.07	1.493	173			
Hybrid Courses	2.92	1.229	146			
Face-to-Face Courses	3.39	1.038	99			
Total	3.09	1.315	418			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				3.970	418	.020
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.32	.165	.148	Statistically significant	
Hybrid Courses	Online Courses	-.15	.147	.907		
Face-to-Face Courses	Hybrid Courses	.48	.170	.016		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			20.720	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	65.9%	78.5%	88.5%	75.0%	Statistically significant	
	143a	128b	92b	363		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			16.431	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.7%	89.6%	95.2%	86.4%	Statistically significant	
	173a	146b	99b	418		

N = 484

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Computer Information Systems 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.82	1.515	670			
Hybrid Courses	3.04	1.305	126			
Face-to-Face Courses	2.83	1.155	678			
Total	2.85	1.343	1474			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				1.452	1474	.234
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.01	.073	1.000	Not statistically significant	
Hybrid Courses	Online Courses	.22	.130	.280		
Face-to-Face Courses	Hybrid Courses	-.20	.130	.348		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			103.107	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	54.9%	69.8%	78.0%	65.6%	Statistically significant	
	528a	104b	609b	1241		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			70.982	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	70.7%	84.6%	86.9%	78.5%	Statistically significant	
	680a	126b	679b	1485		

N = 1892

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

English 71						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.58	1.453	104			
Hybrid Courses	2.13	1.236	192			
Face-to-Face Courses	2.32	1.321	1886			
Total	2.31	1.322	2182			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				3.938	2182	.020
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.26	.133	.158	Statistically significant	
Hybrid Courses	Online Courses	-.45	.161	.016		
Face-to-Face Courses	Hybrid Courses	.19	.100	.177		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			17.927	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	50.9%	51.3%	62.1%	60.3%	Statistically significant	
	82a	137a	1397b	1616		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			54.652	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	65.2%	72.7%	84.3%	82.0%	Statistically significant	
	105a	194a	1897b	2196		

N = 2678

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

English 114						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ Multiple comparison (Bonferroni) Pearson Chi-square statistic/ Multiple comparison (Bonferroni) 		
Online Courses	2.31	1.460	622			
Hybrid Courses	2.12	1.342	459			
Face-to-Face Courses	2.38	1.281	4557			
Total	2.35	1.308	5638			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				8.512	5638	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.07	.056	.661	Statistically significant	
Hybrid Courses	Online Courses	-.19	.080	.054		
Face-to-Face Courses	Hybrid Courses	.26	.064	.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			45.137	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	54.6%	54.7%	64.4%	62.4%	Statistically significant	
	447 _a	324 _a	3511 _b	4282		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			38.139	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	75.9%	77.7%	83.7%	82.2%	Statistically significant	
	622 _a	460 _a	4564 _b	5646		

N = 6866

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

English 115						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.68	1.342	866			
Hybrid Courses	2.46	1.225	584			
Face-to-Face Courses	2.55	1.250	5143			
Total	2.56	1.261	6593			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				5.692	6593	.003
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.13	.046	.019	Statistically significant	
Hybrid Courses	Online Courses	-.22	.067	.004		
Face-to-Face Courses	Hybrid Courses	.09	.055	.301		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			39.000	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	60.0%	65.6%	69.2%	67.5%	Statistically significant	
	705 _a	478 _b	4164 _b	5347		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			103.815	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	73.7%	80.2%	85.5%	83.3%	Statistically significant	
	866 _a	585 _b	5148 _c	6599		

N = 7921

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

English 116						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.87	1.360	829			
Hybrid Courses	2.63	1.141	357			
Face-to-Face Courses	2.82	1.150	2191			
Total	2.81	1.206	3377			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				5.298	3377	.005
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.05	.049	.922	Statistically significant	
Hybrid Courses	Online Courses	-.24	.076	.004		
Face-to-Face Courses	Hybrid Courses	.19	.069	.014		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			10.665	2	.005	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	69.4%	74.6%	74.7%	73.4%	Statistically significant	
	687 _a	306 _{a, b}	1919 _b	2912		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			2.776	2	.250	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	83.7%	87.1%	85.3%	85.1%	Not statistically significant	
	829 _a	357 _a	2191 _a	3377		

N = 3969

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Geography 100						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.77	.854	447			
Hybrid Courses	2.37	1.407	102			
Face-to-Face Courses	2.58	1.307	1057			
Total	2.62	1.209	1606			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				6.065	1606	.002
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	.19	.068	.019	Statistically significant	
Hybrid Courses	Online Courses	-.40	.132	.008		
Face-to-Face Courses	Hybrid Courses	.21	.125	.274		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			16.539	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.0%	67.0%	70.2%	72.5%	Statistically significant	
	426a	77b	863b	1366		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			3.546	2	.170	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	83.5%	89.6%	86.0%	85.5%	Not statistically significant	
	450a	103a	1057a	1610		

N = 1883

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

History 100						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.36	1.421	591			
Hybrid Courses	2.13	1.446	85			
Face-to-Face Courses	2.51	1.366	1754			
Total	2.46	1.385	2430			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				5.177	2430	.006
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.15	.066	.062	Statistically significant	
Hybrid Courses	Online Courses	-.23	.160	.468		
Face-to-Face Courses	Hybrid Courses	.38	.154	.040		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			26.469	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	50.3%	48.7%	59.7%	56.8%	Statistically significant	
	445a	58a, b	1373b	1876		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			30.955	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	66.8%	71.4%	76.4%	73.7%	Statistically significant	
	591a	85a, b	1757b	2433		

N = 3303

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Psychology 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.39	1.630	1130			
Hybrid Courses	2.70	1.249	99			
Face-to-Face Courses	2.63	1.342	4905			
Total	2.59	1.401	6134			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				13.875	6134	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.24	.046	.000	Statistically significant	
Hybrid Courses	Online Courses	.31	.146	.107		
Face-to-Face Courses	Hybrid Courses	-.07	.142	1.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			100.166	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	55.3%	65.1%	69.3%	66.5%	Statistically significant	
	773 _a	82 _{a, b}	3963 _b	4818		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			27.315	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	80.8%	78.6%	86.0%	84.8%	Statistically significant	
	1130 _a	99 _{a, b}	4913 _b	6142		

N = 7241

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Psychology 270 / Sociology 270						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.09	1.305	425			
Hybrid Courses	2.17	1.341	117			
Face-to-Face Courses	2.31	1.124	977			
Total	2.24	1.198	1519			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				5.408	1519	.005
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.22	.069	.004	Statistically significant	
Hybrid Courses	Online Courses	.08	.125	1.000		
Face-to-Face Courses	Hybrid Courses	.14	.117	.691		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			53.005	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	49.7%	58.2%	67.4%	61.1%	Statistically significant	
	301a	82a, b	786b	1169		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			46.173	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	70.1%	83.0%	83.7%	79.4%	Statistically significant	
	425a	117b	977b	1519		

N = 1914

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Reading 158						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni)		
Online Courses	2.64	1.377	312			
Hybrid Courses	3.04	1.321	96			
Face-to-Face Courses	3.00	1.188	2816			
Total	2.96	1.216	3224			
<i>Multiple comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				12.165	3224	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	-.35	.072	.000	Statistically significant	
Hybrid Courses	Online Courses	.40	.141	.015		
Face-to-Face Courses	Hybrid Courses	-.04	.126	1.000		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			48.904	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	60.7%	71.3%	76.5%	74.6%	Statistically significant	
	250a	82a, b	2473b	2805		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			41.194	2	.000	
<i>Multiple comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	75.7%	83.5%	87.3%	85.9%	Statistically significant	
	312a	96a, b	2823b	3231		

N = 3760

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Hybrid / Face-to-Face Instructional Delivery

Sociology 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> • F-statistic/ Multiple comparison (Bonferroni) • Pearson Chi-square statistic/ Multiple comparison (Bonferroni) 		
Online Courses	2.68	1.341	873			
Hybrid Courses	2.75	1.338	137			
Face-to-Face Courses	2.61	1.273	2436			
Total	2.63	1.294	3446			
Multiple comparison			F-statistic	F	Grade Count	Significance
				1.679	3446	.187
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	<i>Not statistically significant</i>	
Online Courses	Face-to-Face Courses	.07	.051	.429		
Hybrid Courses	Online Courses	.07	.119	1.000		
Face-to-Face Courses	Hybrid Courses	-.14	.114	.616		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			3.676	2	.159	
Multiple comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	<i>Not statistically significant</i>	
	67.6%	72.8%	66.0%	66.6%		
	712 _a	115 _a	2015 _a	2842		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			9.263	2	.010	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	<i>Not statistically significant</i>	
	82.8%	87.3%	79.8%	80.8%		
	873 _a	138 _a	2436 _a	3447		

N = 4266

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Accounting: 101, 102
Administration of Justice 161
Anthropology 102
Art 151
Biology 100
Business: 121, 140, 183
Economics: 101, 102
English 220
Fire Science 101
Health: 101, 204
History 101
Humanities 104
History / Mexican-American Studies: 141, 142
Medical Office Professional (MEDOP): 133, 230
Music: 105, 106, 107
Personal Development 100
Philosophy: 101, 103, 120
Political Science: 101, 102
Psychology: 106, 211, 230, 250, 260
Psychology 116 / Sociology 116
Sociology: 110, 135
Theatre Arts: 100, 101

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Accounting 101*						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.61	1.405	259			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.69	1.227	845			
Total	2.67	1.270	1104			
Multiple comparison			F-statistic	F	Grade Count	Significance
				1.042	.645	.422
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			30.042	1	.000	
Multiple comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	49.9%	---	65.4%	61.1%	Statistically significant	
	204 _a	---	710 _b	914		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			32.269	1	.000	
Multiple comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	63.3%	---	77.8%	73.8%	Statistically significant	
	259 _a	---	845 _b	1104		

N = 1495

* Hybrid instructional delivery excluded. Does not meet 3 course sections threshold criterion for two year period.

** Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Accounting 102						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.42	1.198	137			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.63	1.121	415			
Total	2.58	1.144	552			
Paired comparison			F-statistic	F	Grade Count	Significance
				3.751	552	.053
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			19.363	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	60.2%	---	77.2%	72.2%	Statistically significant	
	115 _a	---	358 _b	473		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			32.029	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	71.7%	---	89.4%	84.3%	Statistically significant	
	137 _a	---	415 _b	552		

N = 655

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Administration of Justice 161						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.23	1.335	111			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.27	1.201	221			
Total	2.26	1.245	332			
Paired comparison			F-statistic	F	Grade Count	Significance
				.051	332	.822
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.339	1	.247	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	60.1%	---	65.9%	63.8%	Not statistically significant	
	89 _a	---	168 _a	257		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			4.088	1	.043	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	80.4%	---	87.8%	85.1%	Statistically significant	
	119 _a	---	224 _b	343		

N = 403

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Anthropology 102						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.07	1.581	241			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.15	1.325	533			
Total	2.12	1.409	774			
Paired comparison			F-statistic	F	Grade Count	Significance
				.480	774	.489
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			5.530	1	.019	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	51.5%	---	59.7%	57.1%	Statistically significant	
	152a	---	374 _b	526		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.616	1	.204	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	82.0%	---	85.3%	84.3%	Not statistically significant	
	242 _a	---	534 _a	776		

N = 921

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Art 151						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.33	1.080	124			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.80	1.384	163			
Total	3.03	1.287	287			
Paired comparison			F-statistic	F	Grade Count	Significance
				12.571	287	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.148	1	.701	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	71.9%	---	70.0%	70.9%	Not statistically significant	
	115 _a	---	133 _a	248		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			5.955	1	.015	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	77.5%	---	87.4%	82.9%	Statistically significant	
	124 _a	---	166 _b	290		

N = 350

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Biology 100						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.13	1.251	585			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.10	1.294	3908			
Total	2.10	1.288	4493			
Paired comparison			F-statistic	F	Grade Count	Significance
				.289	4493	.591
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.510	1	.219	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	61.8%	---	59.3%	59.7%	Not statistically significant	
	430a	---	2725a	3155		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.506	1	.477	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	84.1%	---	85.1%	84.9%	Not statistically significant	
	585a	---	3908a	4493		

N = 5289

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Business 121						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.58	1.298	165			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.30	1.292	283			
Total	2.40	1.300	448			
Paired comparison			F-statistic	F	Grade Count	Significance
				4.840	448	.028
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.035	1	.851	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	57.1%	---	57.9%	57.6%	Not statistically significant	
	132 _a	---	212 _a	344		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			2.627	1	.105	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	71.4%	---	77.3%	75.0%	Not statistically significant	
	165 _a	---	283 _a	448		

N = 597

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Business 140*						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.68	1.351	548			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.80	1.101	482			
Total	2.74	1.241	1030			
Paired comparison			F-statistic	F	Grade Count	Significance
				2.335	1030	.127
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			14.954	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	69.7%	---	79.5%	74.2%	Statistically significant	
	450a	---	431b	881		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			4.297	1	.038	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	84.8%	---	88.9%	86.7%	Statistically significant	
	548a	---	482b	1030		

N = 1188

* Hybrid instructional delivery excluded. Does not meet 3 course sections threshold criterion for two year period.

** Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Business 183						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.37	1.338	59			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.69	1.363	113			
Total	2.58	1.359	172			
Paired comparison			F-statistic	F	Grade Count	Significance
				2.128	172	.146
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			15.510	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	45.3%	---	71.3%	60.3%	Statistically significant	
	43a	---	92b	135		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			19.945	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	62.1%	---	87.6%	76.8%	Statistically significant	
	59a	---	113b	172		

N = 224

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Economics 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ No paired comparison test Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test) 		
Online Courses	2.78	1.142	388			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.64	1.140	897			
Total	2.68	1.142	1285			
Paired comparison			F-statistic	F	Grade Count	Significance
				4.205	1285	.041
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	<i>Statistically significant</i>	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			14.336	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	65.4%	---	74.6%	71.5%	<i>Statistically significant</i>	
	342a	---	771b	1113		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			38.022	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	74.2%	---	86.8%	82.5%	<i>Statistically significant</i>	
	388a	---	897b	1285		

N = 1557

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Economics 102						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ No paired comparison test Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test) 		
Online Courses	2.86	1.036	376			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.79	1.173	445			
Total	2.82	1.112	821			
Paired comparison			F-statistic	F	Grade Count	Significance
				.656	821	.418
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	<i>Not statistically significant</i>	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.056	1	.812	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.1%	---	79.7%	79.4%	<i>Not statistically significant</i>	
	344 _a	---	389 _a	733		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			5.283	1	.022	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	86.4%	---	91.2%	88.9%	<i>Statistically significant</i>	
	376 _a	---	445 _b	821		

N = 923

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level **in green**.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

English 220						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.77	1.322	126			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.97	1.042	231			
Total	2.90	1.151	357			
Paired comparison			F-statistic	F	Grade Count	Significance
				2.577	357	.109
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			12.383	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	68.6%	---	83.5%	77.8%	Statistically significant	
	107 _a	---	212 _b	319		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			8.890	1	.003	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	80.8%	---	90.9%	87.1%	Statistically significant	
	126 _a	---	231 _b	357		

N = 410

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Fire Science 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.03	1.329	78			
Hybrid Courses	---	---	---			
Face-to-Face Courses	1.92	1.362	139			
Total	2.32	1.448	217			
Paired comparison			F-statistic	F	Grade Count	Significance
				33.440	217	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			14.264	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	82.7%	---	58.3%	66.7%	Statistically significant	
	67a	---	91b	158		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			3.571	1	.059	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	96.3%	---	89.1%	91.6%	Not statistically significant	
	78a	---	139a	217		

N = 237

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Health 101*						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.62	1.519	981			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.78	1.266	3575			
Total	2.75	1.326	4556			
Paired comparison			F-statistic	F	Grade Count	Significance
				10.906	4556	.001
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			66.950	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	61.1%	---	73.3%	70.5%	Statistically significant	
	737 _a	---	2993 _b	3730		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			30.032	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	81.4%	---	87.6%	86.1%	Statistically significant	
	982 _a	---	3576 _b	4558		

N = 5291

* Hybrid instructional delivery excluded. Does not meet 3 course sections threshold criterion for two year period.

** Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Health 204*						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.06	1.272	602			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.84	1.200	874			
Total	2.93	1.234	1476			
Paired comparison			F-statistic	F	Grade Count	Significance
				11.176	1476	.001
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.095	1	.758	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	73.8%	---	73.1%	73.4%	Not statistically significant	
	526a	---	764a	1290		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.199	1	.655	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	84.4%	---	83.6%	84.0%	Not statistically significant	
	602a	---	874a	1476		

N = 1758

* Hybrid instructional delivery excluded. Does not meet 3 course sections threshold criterion for two year period.

** Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

History 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.53	1.414	376			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.76	1.250	1276			
Total	2.71	1.292	1652			
Paired comparison			F-statistic	F	Grade Count	Significance
				9.667	1652	.002
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			28.499	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	60.2%	---	72.9%	69.7%	Statistically significant	
	296a	---	1080b	1376		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			26.978	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	76.4%	---	86.4%	83.9%	Statistically significant	
	376a	---	1279b	1655		

N = 1973

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

History 141 / Mexican-American Studies 141						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.24	1.414	351			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.43	1.297	828			
Total	2.37	1.335	1179			
Paired comparison			F-statistic	F	Grade Count	Significance
				5.107	1179	.024
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			23.846	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	46.4%	---	59.1%	55.0%	Statistically significant	
	250a	---	653b	903		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			17.028	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	66.0%	---	75.7%	72.6%	Statistically significant	
	356a	---	836b	1192		

N = 1643

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

History 142 / Mexican-American Studies 142						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.78	1.367	319			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.56	1.346	520			
Total	2.64	1.358	839			
Paired comparison			F-statistic	F	Grade Count	Significance
				5.264	839	.022
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.079	1	.779	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	64.9%	---	65.8%	65.5%	Not statistically significant	
	263 _a	---	423 _a	686		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.799	1	.372	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	78.8%	---	81.0%	80.2%	Not statistically significant	
	319 _a	---	521 _a	840		

N = 1048

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Humanities 104						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.41	1.399	134			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.51	1.304	641			
Total	2.49	1.321	775			
Paired comparison			F-statistic	F	Grade Count	Significance
				.612	775	.434
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.232	1	.630	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	61.1%	---	63.1%	62.7%	Not statistically significant	
	102 _a	---	507 _a	609		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.013	1	.909	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	80.2%	---	79.9%	79.9%	Not statistically significant	
	134 _a	---	642 _a	776		

N = 971

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Medical Office Professional (MEDOP) 133						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.07	1.103	60			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.49	1.173	51			
Total	2.80	1.166	111			
Paired comparison			F-statistic	F	Grade Count	Significance
				7.108	111	.009
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.139	1	.286	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	76.1%	---	67.7%	72.2%	Not statistically significant	
	54a	---	42a	96		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.121	1	.728	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	84.5%	---	82.3%	83.5%	Not statistically significant	
	60a	---	51a	111		

N = 133

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Medical Office Professional (MEDOP) 230						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.58	.883	330			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.47	1.255	253			
Total	3.10	1.192	583			
Paired comparison			F-statistic	F	Grade Count	Significance
				154.419	583	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			21.199	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	86.5%	---	72.0%	80.2%	Statistically significant	
	315a	---	206b	521		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.837	1	.360	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	90.7%	---	88.5%	89.7%	Not statistically significant	
	330a	---	253a	583		

N = 650

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Music 105						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.12	1.556	347			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.64	1.393	571			
Total	2.44	1.478	918			
Paired comparison			F-statistic	F	Grade Count	Significance
				27.427	918	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			43.703	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	49.9%	---	69.6%	61.6%	Statistically significant	
	223a	---	454b	677		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			19.077	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	77.6%	---	87.6%	83.5%	Statistically significant	
	347a	---	571b	918		

N = 1099

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Music 106						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	1.99	1.677	108			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.43	1.595	155			
Total	2.25	1.640	263			
Paired comparison			F-statistic	F	Grade Count	Significance
				4.538	263	.034
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			9.583	1	.002	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	44.4%	---	61.8%	53.9%	Statistically significant	
	64a	---	107b	171		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			11.845	1	.001	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	75.0%	---	89.6%	83.0%	Statistically significant	
	108a	---	155b	263		

N = 317

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Music 107						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.48	1.578	143			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.48	1.438	407			
Total	2.48	1.474	550			
Paired comparison			F-statistic	F	Grade Count	Significance
				.000	550	.995
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			4.084	1	.043	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	62.9%	---	71.4%	69.0%	Statistically significant	
	105a	---	307b	412		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			13.500	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	85.6%	---	94.7%	92.1%	Statistically significant	
	143a	---	407b	550		

N = 597

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Personal Development 100						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.11	1.076	154			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.86	1.210	934			
Total	2.89	1.194	1088			
Paired comparison			F-statistic	F	Grade Count	Significance
				5.898	1088	.015
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			12.263	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	67.3%	---	78.6%	76.7%	Statistically significant	
	140 _a	---	810 _b	950		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			49.180	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	74.0%	---	91.2%	88.3%	Statistically significant	
	154 _a	---	940 _b	1094		

N = 1239

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Philosophy 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.52	1.097	343			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.64	1.320	1920			
Total	2.62	1.289	2263			
Paired comparison			F-statistic	F	Grade Count	Significance
				2.573	2263	.109
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.974	1	.160	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	63.5%	---	67.0%	66.4%	Not statistically significant	
	275 _a	---	1520 _a	1795		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			7.164	1	.007	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.4%	---	84.6%	83.8%	Statistically significant	
	344 _a	---	1920 _b	2264		

N = 2702

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Philosophy 103						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.29	1.066	147			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.92	1.184	902			
Total	2.97	1.175	1049			
Paired comparison			F-statistic	F	Grade Count	Significance
				12.296	1049	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.014	1	.905	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	75.1%	---	75.6%	75.5%	Not statistically significant	
	133a	---	779a	912		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			2.732	1	.098	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	83.1%	---	87.6%	86.9%	Not statistically significant	
	147a	---	903a	1050		

N = 1208

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Philosophy 120						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.61	.858	134			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.81	1.164	194			
Total	3.14	1.119	328			
Paired comparison			F-statistic	F	Grade Count	Significance
				45.757	328	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			13.639	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	86.4%	---	69.8%	76.3%	Statistically significant	
	127 _a	---	162 _b	289		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			4.845	1	.028	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	91.8%	---	84.1%	87.1%	Statistically significant	
	135 _a	---	195 _b	330		

N = 379

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Political Science 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	0.82	1.237	120			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.62	1.324	629			
Total	2.33	1.467	749			
Paired comparison			F-statistic	F	Grade Count	Significance
				190.568	749	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			139.403	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	15.6%	---	61.1%	51.9%	Statistically significant	
	33a	---	509b	542		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			28.849	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	56.9%	---	75.5%	71.7%	Statistically significant	
	120a	---	629b	749		

N = 1044

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Political Science 102						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.17	1.222	260			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.58	1.318	1089			
Total	2.50	1.309	1349			
Paired comparison			F-statistic	F	Grade Count	Significance
				21.093	1349	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			6.551	1	.010	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	62.1%	---	69.7%	68.2%	Statistically significant	
	190a	---	876b	1066		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.376	1	.540	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	85.3%	---	86.6%	86.4%	Not statistically significant	
	261a	---	1089a	1350		

N = 1563

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Psychology 106						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.38	1.420	449			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.60	1.306	767			
Total	2.52	1.353	1216			
Paired comparison			F-statistic	F	Grade Count	Significance
				7.428	1216	.007
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			31.710	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	57.3%	---	71.7%	65.9%	Statistically significant	
	330a	---	617b	947		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			33.671	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	78.0%	---	89.2%	84.7%	Statistically significant	
	449a	---	768b	1217		

N = 1437

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Psychology 211						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	3.08	1.278	193			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.32	1.313	167			
Total	2.73	1.347	360			
Paired comparison			F-statistic	F	Grade Count	Significance
				30.883	360	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			11.789	1	.001	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	77.4%	---	62.0%	70.0%	Statistically significant	
	168a	---	124b	292		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			2.610	1	.106	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	88.9%	---	83.5%	86.3%	Not statistically significant	
	193a	---	167a	360		

N = 417

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Psychology 230						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.91	1.267	289			
Hybrid Courses	---	---	---			
Face-to-Face Courses	3.46	.877	412			
Total	3.23	1.089	701			
Paired comparison			F-statistic	F	Grade Count	Significance
				46.078	701	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			16.095	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	78.3%	---	89.0%	84.5%	Statistically significant	
	249 _a	---	395 _b	644		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.920	1	.337	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	90.9%	---	92.8%	92.0%	Not statistically significant	
	289 _a	---	412 _a	701		

N = 762

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Psychology 250						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.82	1.488	123			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.31	1.391	143			
Total	2.55	1.456	266			
Paired comparison			F-statistic	F	Grade Count	Significance
				8.217	266	.004
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.000	1	.992	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	61.9%	---	61.8%	61.8%	Not statistically significant	
	99 _a	---	102 _a	201		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			4.098	1	.043	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	78.1%	---	86.7%	82.5%	Statistically significant	
	125 _a	---	143 _b	268		

N = 325

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Psychology 260						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.21	1.323	281			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.38	.986	218			
Total	2.28	1.190	499			
Paired comparison			F-statistic	F	Grade Count	Significance
				2.507	499	.114
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			5.547	1	.019	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	58.9%	---	68.2%	62.9%	Statistically significant	
	208 _a	---	180 _b	388		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.104	1	.293	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.6%	---	83.0%	81.0%	Not statistically significant	
	281 _a	---	219 _a	500		

N = 617

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Psychology 116 / Sociology 116						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.83	1.398	162			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.84	1.358	521			
Total	2.84	1.366	683			
Paired comparison			F-statistic	F	Grade Count	Significance
				.008	683	.927
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.248	1	.264	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	76.9%	---	72.6%	73.6%	Not statistically significant	
	133 _a	---	427 _a	560		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			3.685	1	.055	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	93.6%	---	88.6%	89.8%	Not statistically significant	
	162 _a	---	521 _a	683		

N = 761

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Sociology 110						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> F-statistic/ No paired comparison test Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test) 		
Online Courses	3.17	1.178	219			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.82	1.208	479			
Total	2.93	1.209	698			
<i>Paired comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				12.543	698	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	<i>Statistically significant</i>	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			1.479	1	.224	
<i>Paired comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	79.3%	---	75.4%	76.6%	<i>Not statistically significant</i>	
	199 _a	---	416 _a	615		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			.034	1	.853	
<i>Paired comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	87.3%	---	86.8%	86.9%	<i>Not statistically significant</i>	
	219 _a	---	479 _a	698		

N = 803

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Sociology 135						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.59	1.121	151			
Hybrid Courses	---	---	---			
Face-to-Face Courses	2.73	1.196	201			
Total	2.67	1.165	352			
Paired comparison			F-statistic	F	Grade Count	Significance
				1.193	352	.275
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			2.049	1	.152	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	73.4%	---	79.5%	76.8%	Not statistically significant	
	127 _a	---	175 _a	302		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			1.726	1	.189	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	87.3%	---	91.4%	89.6%	Not statistically --- significant	
	151 _a	---	201 _a	352		

N = 393

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Theatre Arts 100						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.71	1.493	97			
Hybrid Courses	---	---	---			
Face-to-Face Courses	3.00	1.257	115			
Total	2.87	1.374	212			
Paired comparison			F-statistic	F	Grade Count	Significance
				2.337	212	.128
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			18.714	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	56.1%	---	81.3%	68.2%	Statistically significant	
	74 _a	---	100 _b	174		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			17.156	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	74.2%	---	93.5%	83.5%	Statistically significant	
	98 _a	---	115 _b	213		

N = 255

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Online / Face-to-Face Instructional Delivery

Theatre Arts 101						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	2.18	1.522	182			
Hybrid Courses	---	---	---			
Face-to-Face Courses	3.02	1.269	137			
Total	2.54	1.476	319			
Paired comparison			F-statistic	F	Grade Count	Significance
				27.443	319	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			28.704	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	51.3%	---	78.3%	61.8%	Statistically significant	
	122a	---	119b	241		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			11.625	1	.001	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	76.5%	---	90.1%	81.8%	Statistically significant	
	182a	---	137b	319		

N = 390

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Math: 45, 60

Reading: 54, 56

Business: 70, 290

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Math 45*						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	---	---	---			
Hybrid Courses	1.48	1.311	212			
Face-to-Face Courses	2.09	1.293	5007			
Total	2.06	1.299	5219			
Paired comparison			F-statistic	F	Grade Count	Significance
				44.355	5219	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			66.694	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	32.9%	57.5%	56.4%	Statistically significant	
	---	93 _a	3550 _b	3643		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			9.222	1	.002	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	75.3%	82.4%	82.0%	Statistically significant	
	---	213 _a	5086 _b	5299		

N = 6465

* Online instructional delivery excluded. Does not meet 3 course sections threshold criterion for two year period.

** Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Math 60						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	---	---	---			
Hybrid Courses	1.10	1.404	104			
Face-to-Face Courses	2.00	1.276	5223			
Total	1.98	1.285	5327			
Paired comparison			F-statistic	F	Grade Count	Significance
				50.922	5327	.000
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			71.126	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	21.3%	54.6%	53.8%	Statistically significant	
	---	35 _a	3598 _b	3633		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			26.588	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	64.6%	80.8%	80.4%	Statistically significant	
	---	106 _a	5327 _b	5433		

N = 6756

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Reading 54						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	---	---	---			
Hybrid Courses	2.86	.944	126			
Face-to-Face Courses	2.48	1.254	712			
Total	2.54	1.219	838			
Paired comparison			F-statistic	F	Grade Count	Significance
				10.261	838	.001
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			19.982	1	.000	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	87.6%	69.0%	71.6%	Statistically significant	
	---	120a	584b	704		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			4.764	1	.029	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	92.0%	85.0%	86.0%	Statistically significant	
	---	126a	719b	845		

N = 983

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Reading 56						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	---	---	---			
Hybrid Courses	2.69	1.060	177			
Face-to-Face Courses	2.73	1.206	1305			
Total	2.73	1.189	1482			
Paired comparison			F-statistic	F	Grade Count	Significance
				.192	1482	.661
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			7.891	1	.005	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	79.6%	69.9%	71.0%	Statistically significant	
	---	156a	1098b	1254		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			6.46	1	.011	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	90.3%	83.2%	84.0%	Statistically significant	
	---	177a	1307b	1484		

N = 1766

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Business 70						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: <ul style="list-style-type: none"> No F-statistic/ No paired comparison test Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test) 		
Online Courses	---	---	---			
Hybrid Courses	---	---	---			
Face-to-Face Courses	---	---	---			
Total	---	---	---			
<i>Paired comparison</i>			<i>F-statistic</i>	F	Grade Count	Significance
				---	---	---
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	<i>Not applicable (Pass/No Pass)</i>	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			.940	1	.332	
<i>Paired comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	63.1%	69.4%	68.0%	<i>Not statistically significant</i>	
	---	41 _a	159 _a	200		
Course Completion Rate						
<i>Pearson Chi-square</i>			χ^2	df	Significance	
			.011	1	.915	
<i>Paired comparison*</i>	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	84.6%	85.2%	85.0%	<i>Not statistically significant</i>	
	---	55 _a	195 _a	250		

N = 294

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Individual Course Comparisons: Hybrid / Face-to-Face Instructional Delivery

Business 290						
Grade Point Average (GPA)						
Delivery Method	GPA	Standard Deviation	n	Tests: • F-statistic/ No paired comparison test • Pearson Chi-square statistic/ Paired comparison (Two proportions Z-test)		
Online Courses	---	---	---			
Hybrid Courses	3.73	.844	199			
Face-to-Face Courses	3.72	.708	82			
Total	3.73	.805	281			
Paired comparison			F-statistic	F	Grade Count	Significance
				.018	281	.894
(I) Hybrid, Online and Face-to-Face	(J) Hybrid, Online and Face-to-Face	Mean Difference (I-J)	Standard Error	Significance	Conclusion	
Online Courses	Face-to-Face Courses	---	---	---	Not statistically significant	
Hybrid Courses	Online Courses	---	---	---		
Face-to-Face Courses	Hybrid Courses	---	---	---		
Course Success Rate						
Pearson Chi-square			χ^2	df	Significance	
			.897	1	.344	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	80.9%	85.3%	82.1%	Not statistically significant	
	---	190 _a	81 _a	271		
Course Completion Rate						
Pearson Chi-square			χ^2	df	Significance	
			.143	1	.705	
Paired comparison*	Online Courses	Hybrid Courses	Face-to-Face Courses	Total	Conclusion	
	---	84.7%	86.3%	85.2%	Not statistically significant	
	---	199 _a	82 _a	281		

N = 330

* Unmatched subscript letters denote *Delivery Method* categories whose column proportions differ statistically from each other. Statistically significant result(s) at the .05 level in green.

Appendix

Appendix

Course Section and Enrollment Totals*: Summer 2014 - Spring 2016							
#	Course	Online Courses		Hybrid Courses		Face-to-Face Courses	
		Sections Total	End-of-Term Enrollment Total	Sections Total	End-of-Term Enrollment Total	Sections Total	End-of-Term Enrollment Total
1	Accounting 101**	14	409	2	71	28	1086
2	Accounting 102	5	191	---	---	13	464
3	Administration of Justice 111	11	312	8	320	36	1392
4	Administration of Justice 151	12	374	4	146	5	178
5	Administration of Justice 161	4	148	---	---	6	255
6	Anthropology 101	6	236	4	92	28	1144
7	Anthropology 102	8	295	---	---	18	626
8	Art 104	16	639	11	379	64	2498
9	Art 151	4	160	---	---	5	190
10	Biology 100	19	696	---	---	111	4593
11	Business 70	---	---	4	65	13	229
12	Business 120	13	279	7	189	7	267
13	Business 121	8	231	---	---	9	366
14	Business 140**	18	646	2	38	12	542
14	Business 183	4	95	---	---	7	129
16	Business 290	---	---	14	235	8	95
17	Child Development 135	9	271	3	106	4	132
18	Child Development 170	29	931	48	1716	3	87
19	Child Development 284	5	217	6	163	4	104
20	Computer Information Systems 101	48	962	8	149	33	781
21	Economics 101	14	523	---	---	25	1034
22	Economics 102	12	435	---	---	14	488
23	English 71	6	161	12	267	89	2250
24	English 114	32	819	23	592	197	5455

Appendix

Course Section and Enrollment Totals*: Summer 2014 - Spring 2016 (Cont.)							
#	Course	Online Courses		Hybrid Courses		Face-to-Face Courses	
		Sections Total	End-of-Term Enrollment Total	Sections Total	End-of-Term Enrollment Total	Sections Total	End-of-Term Enrollment Total
25	English 115	43	1175	25	729	212	6017
26	English 116	35	990	14	410	93	2569
27	English 220	4	156	---	---	8	254
28	Fire Science 101	4	81	---	---	6	156
29	Geography 100	13	539	4	115	33	1229
30	History 100	24	885	4	119	56	2299
31	History 101	12	492	---	---	39	1481
32	History 141 / Mexican-American Studies 141***	30	539	---	---	66	1104
33	History 142 / Mexican-American Studies 142***	24	405	---	---	40	643
34	Health 101**	38	1207	---	---	114	4084
35	Health 204**	18	713	---	---	33	1045
36	Math 45**	---	---	9	283	179	6176
37	Math 60	---	---	5	164	188	6592
38	Medical Office Professional (MEDOP) 133	4	71	---	---	3	62
39	Medical Office Professional (MEDOP) 230	15	364	---	---	10	286
40	Music 105	14	447	---	---	18	652
41	Music 106	4	144	---	---	4	173
42	Music 107	4	167	---	---	10	430
43	Personal Development 100	8	208	---	---	37	1031
44	Philosophy 101	11	433	---	---	60	2269
45	Philosophy 103	4	177	---	---	30	1031

Appendix

Course Section and Enrollment Totals*: Summer 2014 - Spring 2016 (Cont.)							
#	Course	Online Courses		Hybrid Courses		Face-to-Face Courses	
		Sections Total	End-of-Term Enrollment Total	Sections Total	End-of-Term Enrollment Total	Sections Total	End-of-Term Enrollment Total
46	Philosophy 120	4	147	---	---	8	232
47	Political Science 101	8	211	---	---	22	833
48	Political Science 102	8	306	---	---	36	1257
49	Psychology 101	37	1399	4	126	144	5716
50	Psychology 106	15	576	---	---	23	861
51	Psychology 116 / Sociology 116***	8	173	---	---	26	588
52	Psychology 211	6	217	---	---	7	200
53	Psychology 230	8	318	---	---	10	444
54	Psychology 250	4	160	---	---	4	165
55	Psychology 260	10	353	---	---	8	264
56	Psychology 270 / Sociology 270***	32	606	8	141	52	1167
57	Reading 54	---	---	5	137	29	846
58	Reading 56	---	---	7	196	56	1570
59	Reading 158	17	412	6	115	121	3233
60	Sociology 101	28	1054	6	158	79	3054
61	Sociology 110	6	251	---	---	16	552
62	Sociology 135	4	173	---	---	5	220
63	Theatre Arts 100	4	132	---	---	4	123
64	Theatre Arts 101	6	238	---	---	3	152

* Listed courses meet selection criteria thresholds per instructional delivery method (i.e. at least 3 sections in two year period / 60 or more enrollments per delivery method).

** Online or hybrid data excluded in analysis. Does not meet 3 course sections threshold criterion for two year period.

*** Equivalent catalog courses.

Submitted
January 24, 2017