Supplemental Material

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Supplemental Table 1. Lab Report Rubric for Experimental Immunology. Report expectations and available number of points remained consistent before traditional and CURE class formats. CURE students needed to provide background information for their gene of interest along with background information for immunology in the introduction. Methods remained the same except CURE students analyzed WT and KO mice instead of just WT mice. In the results, CURE students had twice the number of figures due to having data for WT and KO mice. In the discussion, CURE students talked about the impact of their data specifically. The rubric, experiments, and software used to analyze data remained consistent between formats.

Introduction	
What to Include	*Total Points*
Background Information	4
State Purpose	1
State Question	1
State Hypothesis	1
Methods	
What to Include	*Total Points*
How experiments were performed	5
Results	
What to Include	*Total Points*
Figures	5
Software/Equipment for data analysis	2
Controls	1
Qualitative and Quantiative Data	2
Summary	2
Discussion	
What to Include	*Total Points*
Restate Question and Hypothesis	1
Accept/Reject Hypothesis	1
Explain why accept/reject hypothesis	6

Impact	3
Future Directions	2
Cite at least one reference within last two years	2
Other	
What to Include	*Total Points*
Grammar	2
Formatting	2
References	5
Legends/captions for figures	2

Supplemental Table 2. GPA and Class Format Each Impacted Student Quiz Scores. Multiple linear regression analysis showed GPA and class format each impacted student performance on quizzes. Student academic level had no impact on student performance. Degree program was not able to be analyzed via multiple linear regression due to the number of different degree programs students had. CURE students n = 139, traditional students n = 119.

Parameter estimates	Variable	Estimate	Standard error	95% CI (asymptotic)	|t|	P value	P value summary
β0	Intercept	27.41	4.170	19.20 to 35.63	6.575	<0.0001	****
β1	GPA	4.717	1.216	2.321 to 7.112	3.880	0.0001	***
β2	Class Format	5.421	1.282	2.895 to 7.948	4.228	<0.0001	****
β3	Academic Level[Junior]	0.2365	3.048	-5.771 to 6.244	0.07757	0.9382	ns
β4	Academic Level[Post-Bacc]	5.176	4.759	-4.202 to 14.55	1.088	0.2779	ns
β5	Academic Level[Graduate]	-7.387	5.530	-18.28 to 3.512	1.336	0.1830	ns
β6	Academic Level[Freshman]	-1.041	9.481	-19.73 to 17.64	0.1098	0.9127	ns

Supplemental Table 3. GPA and Class Format Each Impacted Student Report Scores. Multiple linear regression analysis showed GPA and class format each impacted student performance on lab reports. Student academic level had no impact on student performance. Degree program was not able to be analyzed via multiple linear regression due to the number of different degree programs students had. CURE students n = 139, traditional students n = 119.

Parameter estimates	Variable	Estimate	Standard error	95% CI (asymptotic)	|t|	P value	P value summary
β0	Intercept	110.3	13.50	83.68 to 136.9	8.171	<0.0001	****
β1	GPA	11.22	3.926	3.479 to 18.95	2.857	0.0047	**
β2	Class Format	13.65	4.100	5.570 to 21.73	3.329	0.0010	**
β3	Academic Level[Junior]	2.818	10.23	-17.34 to 22.97	0.2756	0.7831	ns
β4	Academic Level[Post-Bacc]	10.62	15.13	-19.20 to 40.43	0.7018	0.4836	ns
β5	Academic Level[Graduate]	-34.45	17.58	-69.11 to 0.2044	1.959	0.0514	ns
β6	Academic Level[Freshman]	8.211	30.14	-51.19 to 67.61	0.2724	0.7855	ns

Supplemental Table 4. GPA and Class Format Each Impacted Student Exam Scores. Multiple linear regression analysis showed GPA and class format each impacted student performance on exams. Student academic level had no impact on student performance. Degree program was not able to be analyzed via multiple linear regression due to the number of different degree programs students had. CURE students n = 139, traditional students n = 119.

Parameter estimates	Variable	Estimate	Standard error	95% CI (asymptotic)	|t|	P value	P value summary
β0	Intercept	81.96	7.173	67.82 to 96.10	11.43	<0.0001	****
β1	GPA	9.403	2.091	5.282 to 13.52	4.497	<0.0001	****
β2	Class Format	8.791	2.206	4.444 to 13.14	3.985	<0.0001	****
β3	Academic Level[Junior]	-4.641	5.244	-14.97 to 5.694	0.8849	0.3771	ns
β4	Academic Level[Post-Bacc]	7.875	8.187	-8.259 to 24.01	0.9619	0.3371	ns
β5	Academic Level[Graduate]	-9.556	9.514	-28.31 to 9.193	1.004	0.3162	ns
β6	Academic Level[Freshman]	7.578	16.31	-24.57 to 39.72	0.4646	0.6427	ns
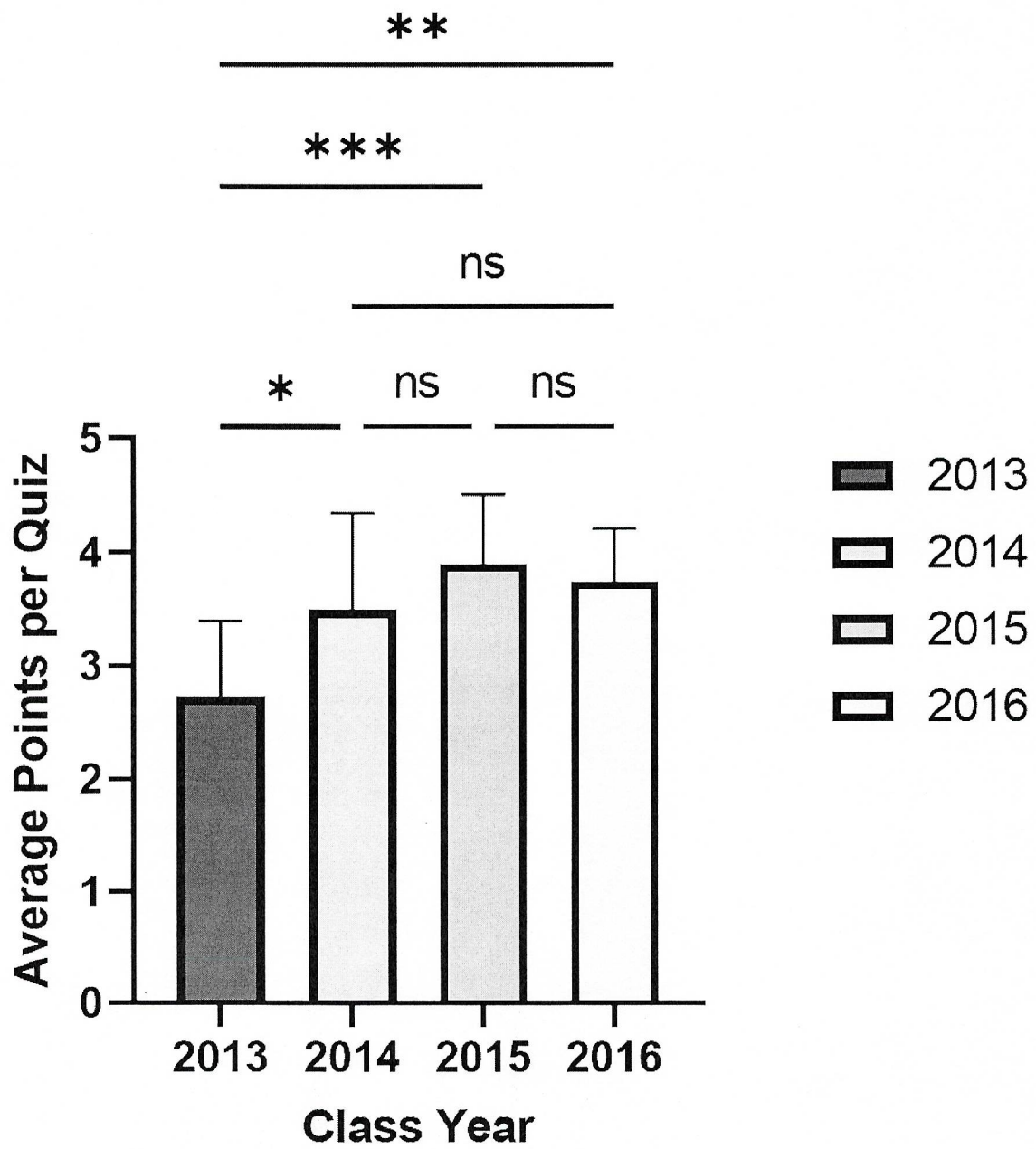
Supplemental Fig. 1. Quiz Scores Did Not Improve Across All Four Years of the Traditional Class Format. The year 2013 represents the first time the lab class was ever taught and has significantly lower quiz scores than the remaining three years of the traditional class format. No significant difference in quiz scores exists between 2014-2016.
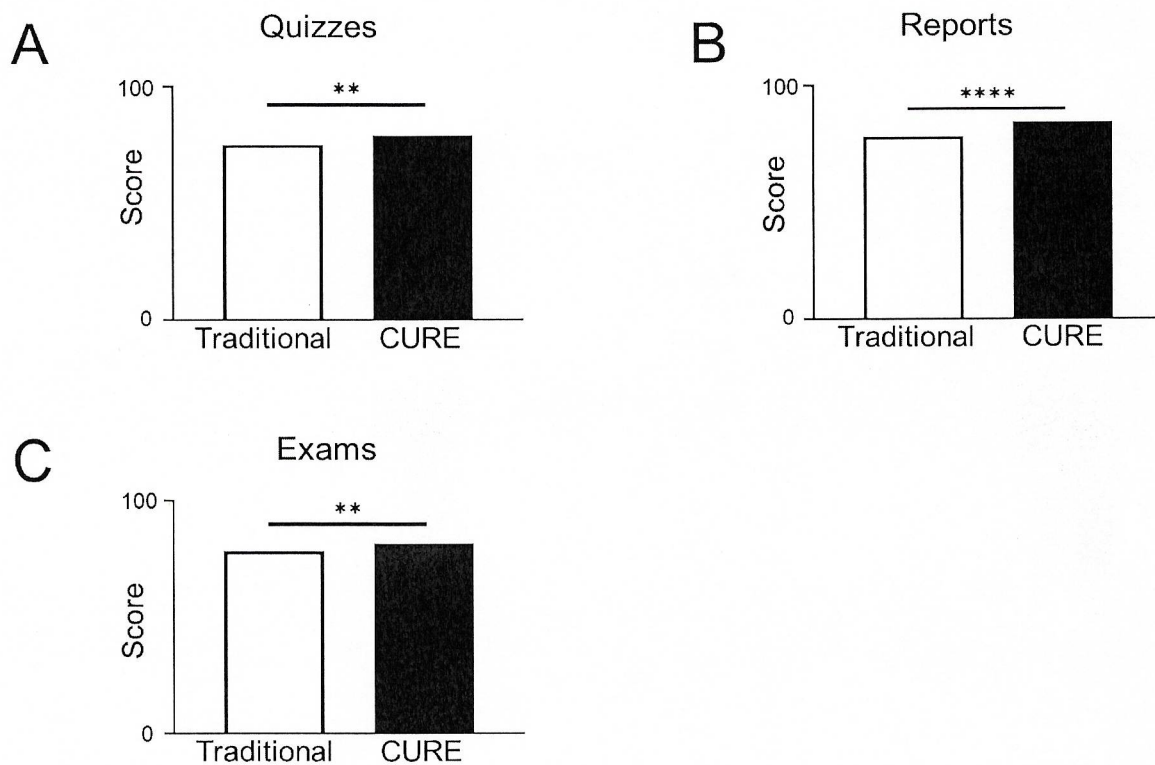
Supplemental Fig. 2. Changing Class Format to a CURE Improved Student Performance. (**A**) Quiz scores between class formats remained significantly different after removing the first time the class was taught (p = 0.0028) (**B**) Report scores between class formats remained significantly different after removing the first time the class was taught (p < 0.0001) (**C**) Exam scores between class formats remained significantly different after removing the first time the class was taught (p = 0.0091).