



Course Transformation Assessment Guide

Transforming courses to improve student learning and experiential outcomes is an on-going and iterative process. Data plays a key role in this process as it can help to identify the strengths of your course as well as opportunities for growth for you and your LAs. The mission of the Provost LA Initiative is to support faculty in this process, therefore, we ask that faculty share course assessment data or a plan for data collection with us for each renewal application submission. These applications also ask that you connect your data or plan to how you intend to use the information to inform any changes in your instructional practices or in the ways that you work with LAs.

Given the enumerable ways there are to assess course transformation, the process can seem quite daunting. We have created this guide to provide transparency about what is expected as a part of the data report or plan and to give you an array of examples of ways faculty have assess their courses with LAs. This guide includes the following:

1. [Example data plan](#)
2. [Example data report](#)
3. [Ways to assess your course](#)

Please note that the example data plan and report are provided as guides and not meant to be overly prescriptive. If you have already completed the [Panther 180 Evaluating Teaching report](#), you are welcome to submit that as your data report. What is most important is that you clearly communicate the context of the data and any changes you plan to make based on the data submitted.

If you have any questions or would like a consult related to your data plan or report, please feel free to reach out to the LA Program team at laprogram@fiu.edu.

Example Data Plan

Jon Snow

Wall 2313

Introduction to Sword Fighting

I am teaching a course that is historically thought of as a gatekeeping course in a STEM discipline. I would like my course to support all students to engage in the discipline and course successfully. Since transforming my course with LAs, I have generally observed that students are scoring higher on exams and the overall course however I am considering other changes to the course and would like to have a greater understanding of the impact on my students learning and experience in the course.

Student experience:

- I will ask my LAs to conduct informal check-ins, every 3-4 weeks, via email or WhatsApp with students to see how they are doing with the course material and with the course environment. We will discuss what they learn during our planning meetings and create a plan to respond to issues as needed and feasible.
- I will ask CAT to collect mid-semester course feedback. This will allow me to understand if the structure of the course is impacting students and make any relevant changes to the course structure.
- I will ask Tekla Nicholas to administer the gateway survey to my students at the end of the semester, so that I have an understanding of student experience and how they were supported by LAs throughout the semester.

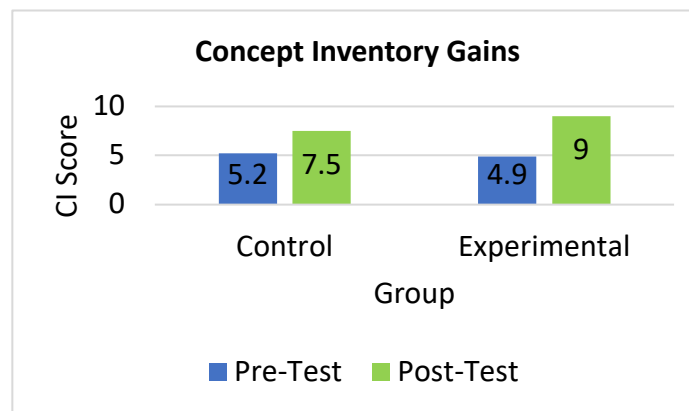
Student learning:

This coming semester I am planning to have students work on a series of group assignments throughout the semester that focus on concepts that students often find confusing or difficult. My hope is that this will allow them more time to think deeply about these concepts and build relationships with their peers and LAs. To assess the impact of these new assignments I will use a pre-post concept inventory to assess if these assignments increase their understanding of these concepts.

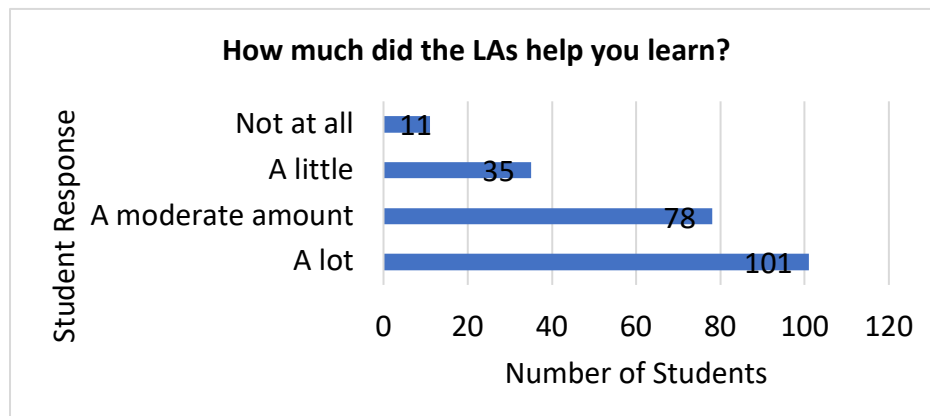
Example Data Report

Jon Snow
Wall 2313
Introduction to Sword Fighting

This past semester I began integrating collaborative activities that focused on central issues in the course that are often challenging for students. In the past, I have collected data using a concept inventory to assess how much they learned about these concepts. I used this same concept inventory this semester to assess their understanding. In the graph below, I show the data from the previous semester (control) and from this past semester (experimental). These data suggest that the new assignments are supporting larger shifts in student understandings of these concepts than my previous design. **Next Steps:** Given that these new assignments appear to support student learning, I am interested in understanding more about their experience in working with their groups and the role LAs play in supporting their groups. I will consult with the LA Program and CAT to find resources that will allow me to learn more about these aspects of student experience.



I also administered a student satisfaction survey. One question I was very interested in, was if the students felt the LAs supported their learning. From the data below it appears that most students feel that the LAs support their learning a lot however, I am interested to understand how the LAs can reach and support more students. I will consult with the LA program and others who have worked with LAs for longer than I have, to learn about ways that I can ensure the LAs are reaching as many students as possible



Ways to assess your course

As you choose which types of assessment you will use to support your course transformation, you want to be sure that the data collected reflects your classroom learning goals and student needs. To gain a wholistic view of your course you should include multiple measures of relevant success indicators. Below you will find an assortment of course assessment methods that have been used by faculty working with LAs. Please note that some of these measures, such as class participation, include information

Measures of Participation: These measures can provide information about how many students are in class and which students are participating in class activities.

- Class attendance
- Exam review session attendance
- Number of iClicker responses

Graded Outcomes: These measures can provide a large-scale look at who and how many students are being retained in the course. Exam grades can provide information about which concepts students may need more support with.

- Exam scores
- Passing rates
- Course Grades
- DFW rates

Measures of Learning: These measures can provide a closer look at what students have learned by the end of the semester. This can help to highlight concepts or practices that you may want to focus on for future iterations of the course.

- Concept Inventories

Measures of Satisfaction: The extent to which students were satisfied with their experiences in the classroom. For example:

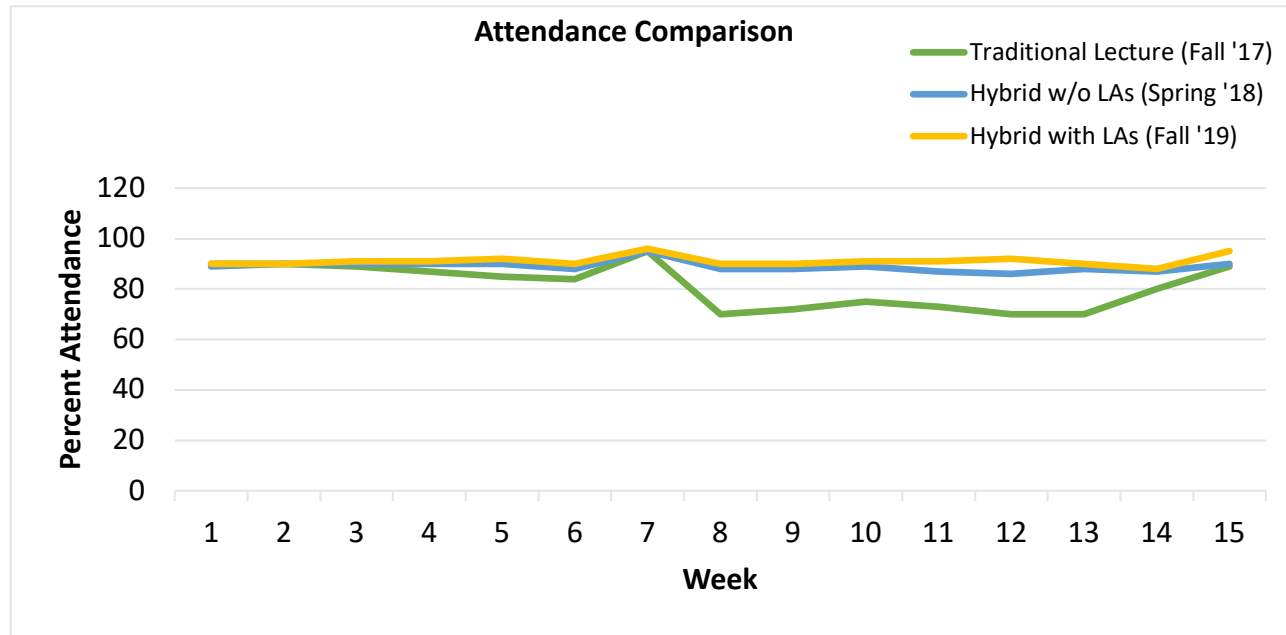
- In-house student satisfaction surveys
- SPOTS
- Mid-semester feedback surveys
- Contact Tekla Nicholas (tnichola@fiu.edu) for the Gateway survey which is adaptable and includes questions about LAs
- Attitude Tests

For more resources, click [here](#)

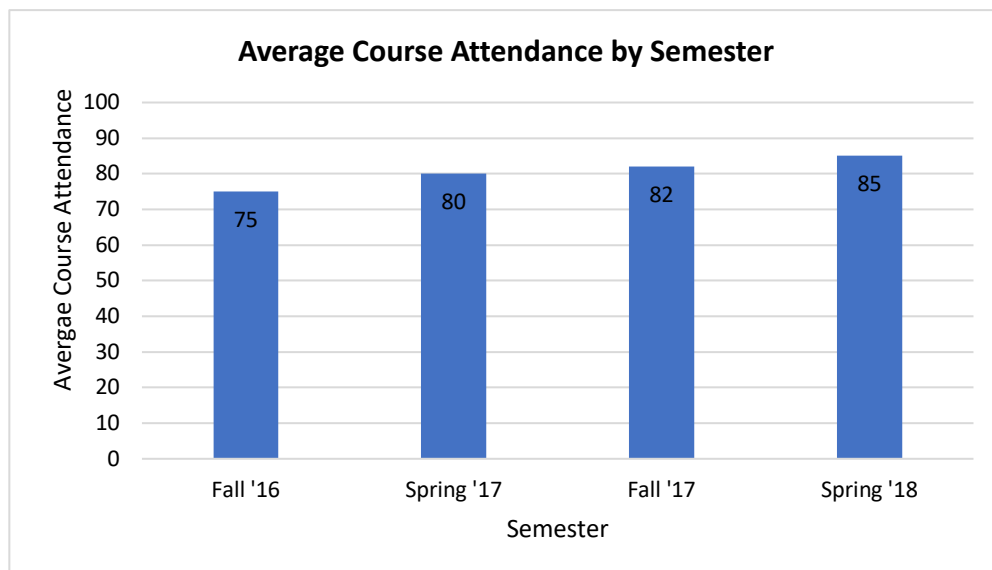
Please remember the LA Program team is available to meet with you for a consultation if you'd like additional support.

Measures of Participation

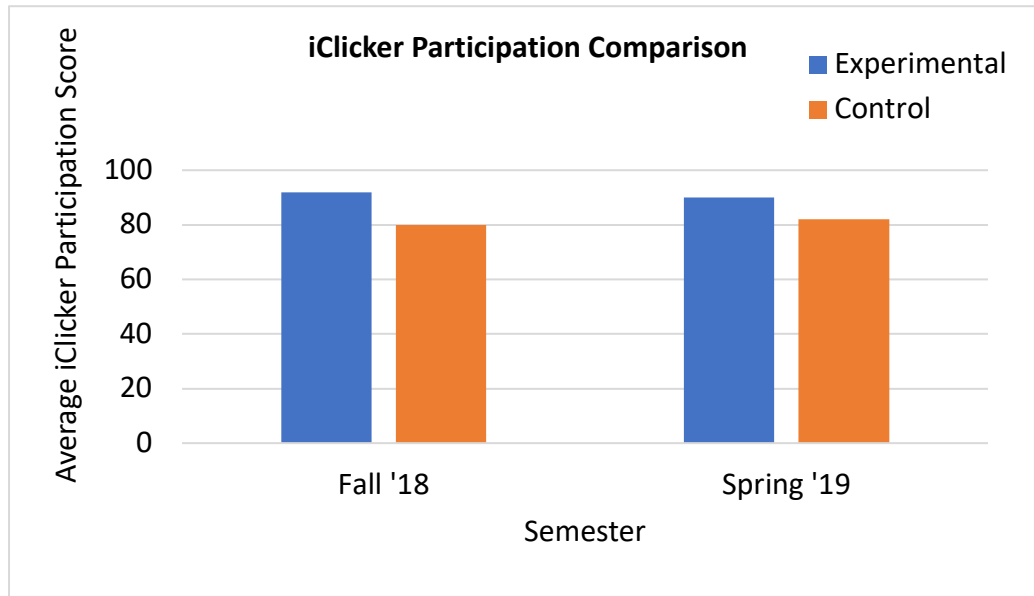
Example A: Comparing weekly attendance by course format



Example B: Comparing attendance by semester

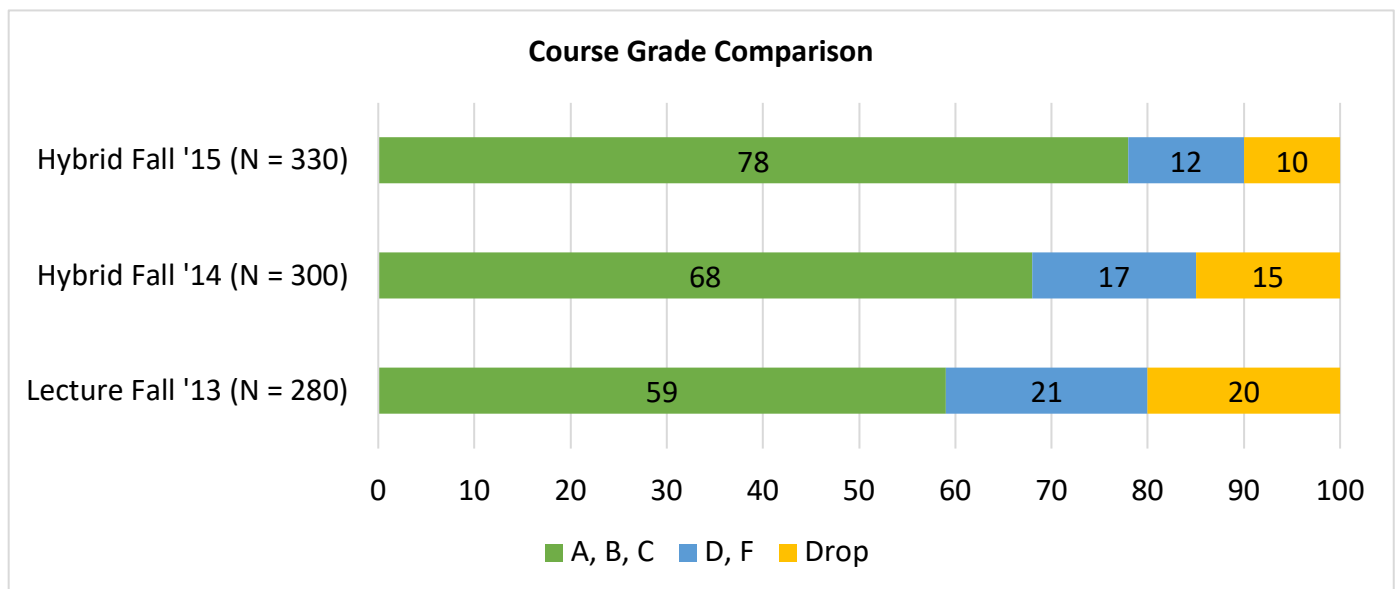


Example C: Comparing iClicker participation scores for experimental (e.g., section with LAs) and control (e.g., section without LAs) conditions.



Grading Outcomes

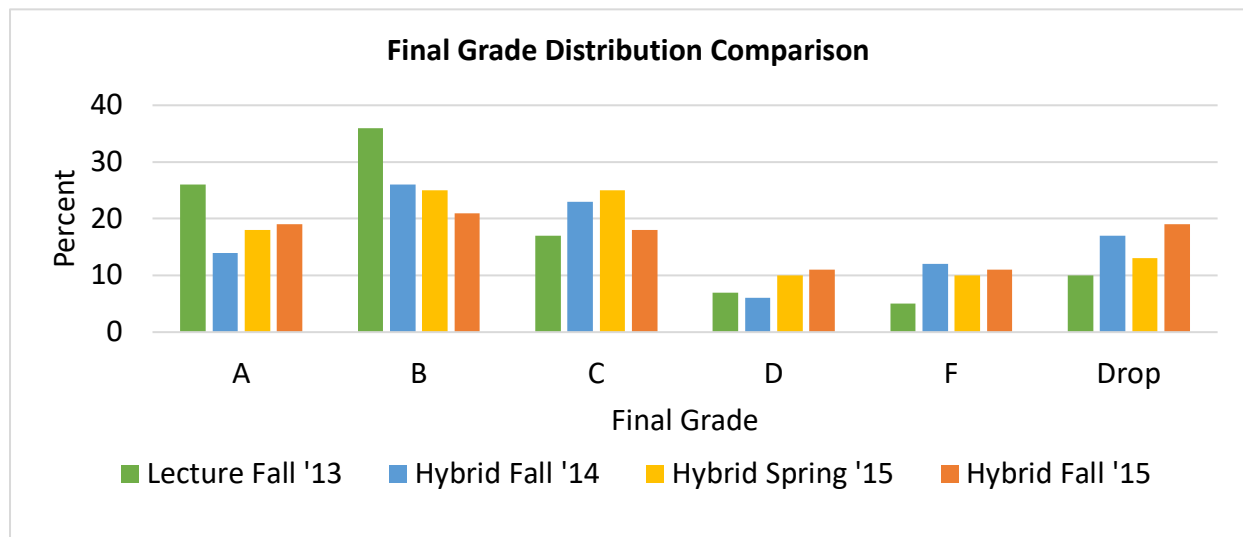
Example A: Percent of students passing, failing, and dropping the course-by-course format.



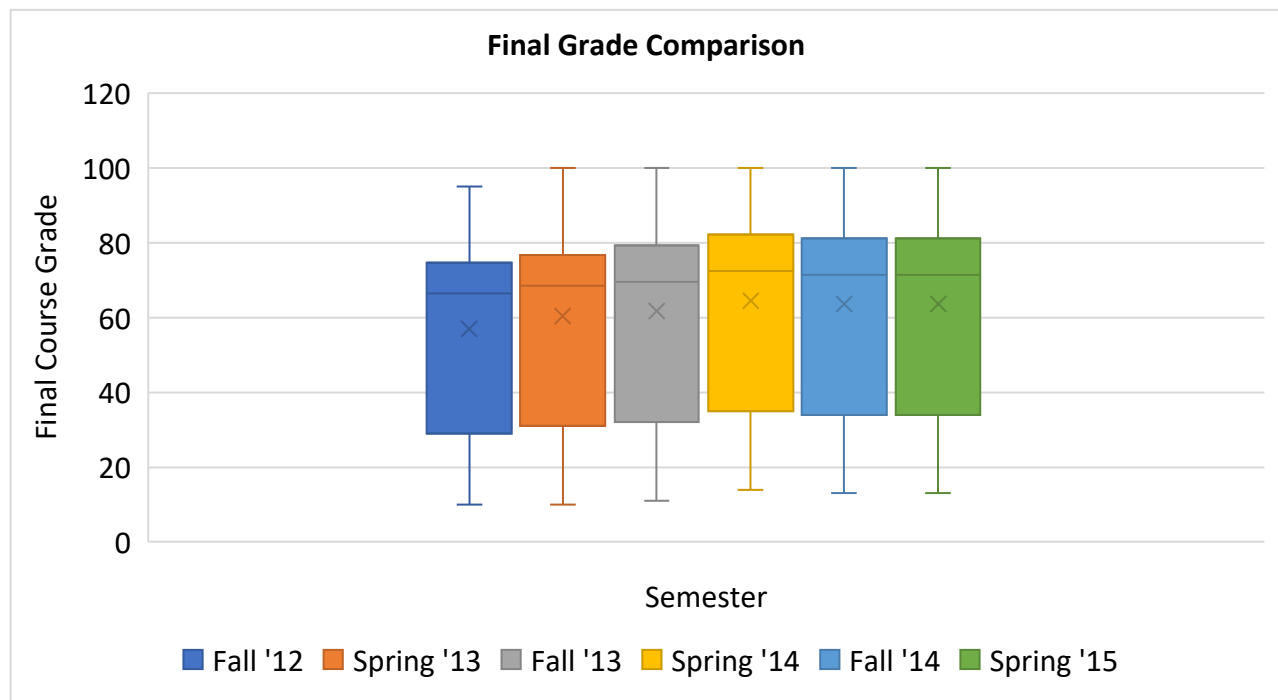
Example B: Passing rates over semesters and number of LAs.

	Number of LAs	Passing Rate
Fall '13	0	59%
Fall '14	6	67%
Spring '15	6	63%
Fall '15	10	79%
Spring '16	10	72%
Fall '16	10	85%

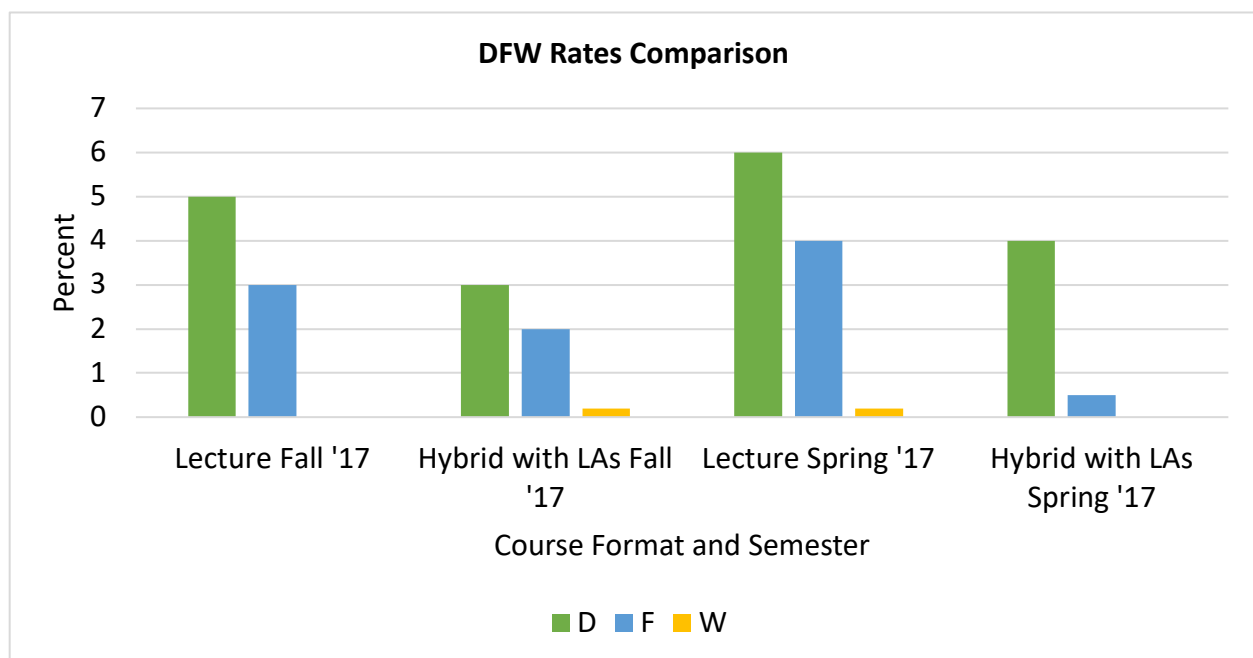
Example C: Comparison of final grade distribution by semester and format.



Example D: Final course grade comparison by semester.



Example E: DFW rates comparison by course format.



Example F: Comparing exam scores by course format

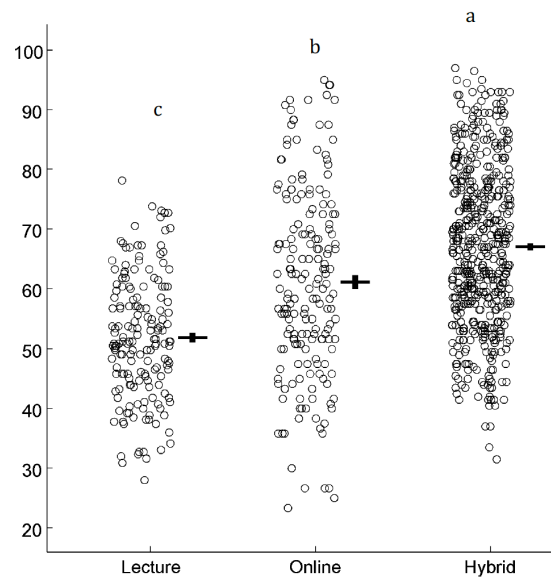


Figure 1: Since the course formats vary widely in sample size, I used Kruskal-Wallis analysis to test for differences in exam average. I found that exam average is significantly different for each course type ($\chi^2_{2,870}=141.8$, $p<0.001$). Letters indicate significant differences using Pairwise Wilcoxon Rank Sum Test (table 1).

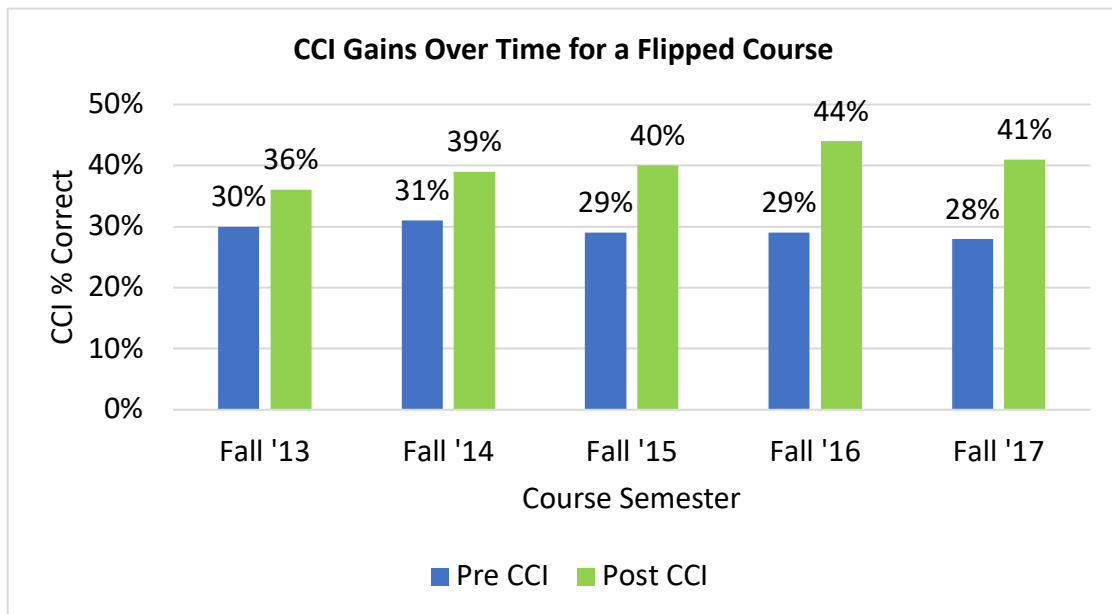
Example G: Comparing exam scores for a control (e.g., traditional lecture) and experimental group (e.g., flipped course with LAs).

	Experimental	Control	p-value
Q1	7.91	8.02	0.337
Q2	12.93	10.51	< .001
Q3	9.01	8.88	0.565
Q4	7.34	7.85	0.574
Q5	5.44	2.78	<.001
Total	42.63	38.04	<.01

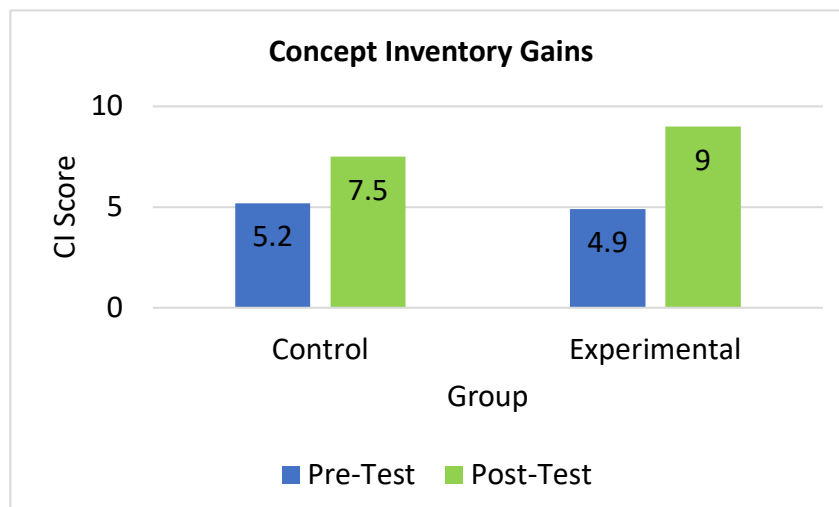
Measures of Learning

Concept inventories are research-based assessment instruments that probe students' understanding of discipline or course specific concepts.

Example A: Comparison of pre- and post-concept inventory scores by semester

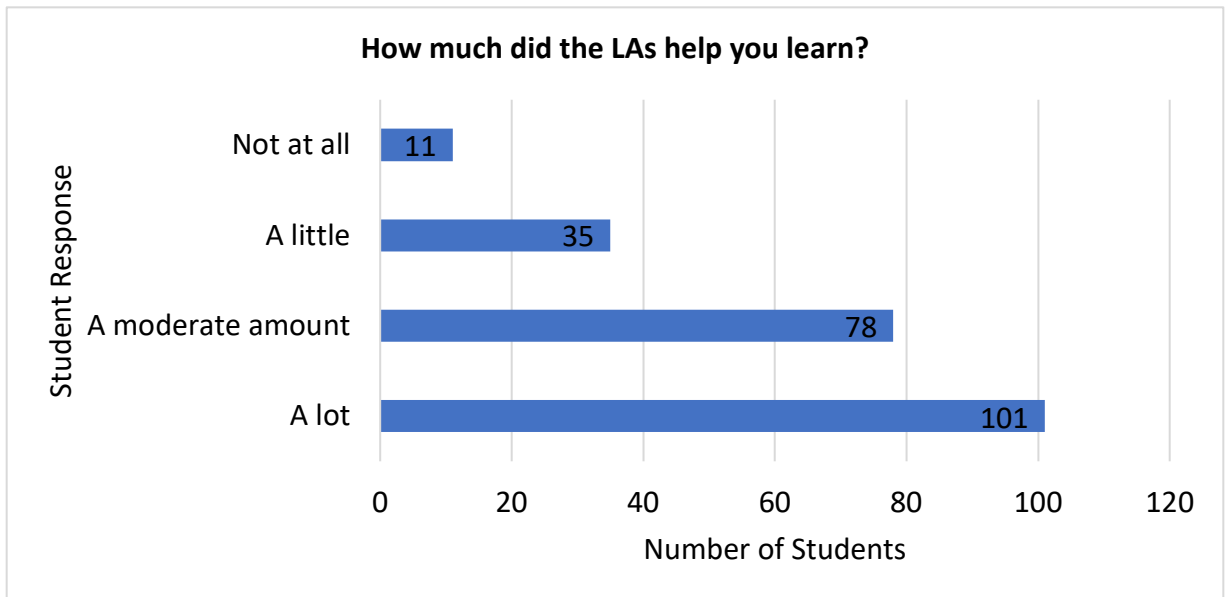


Example B: Comparison of pre- and post-concept inventory scores for a control (e.g., traditional lecture) and experimental group (e.g., flipped course with LAs).

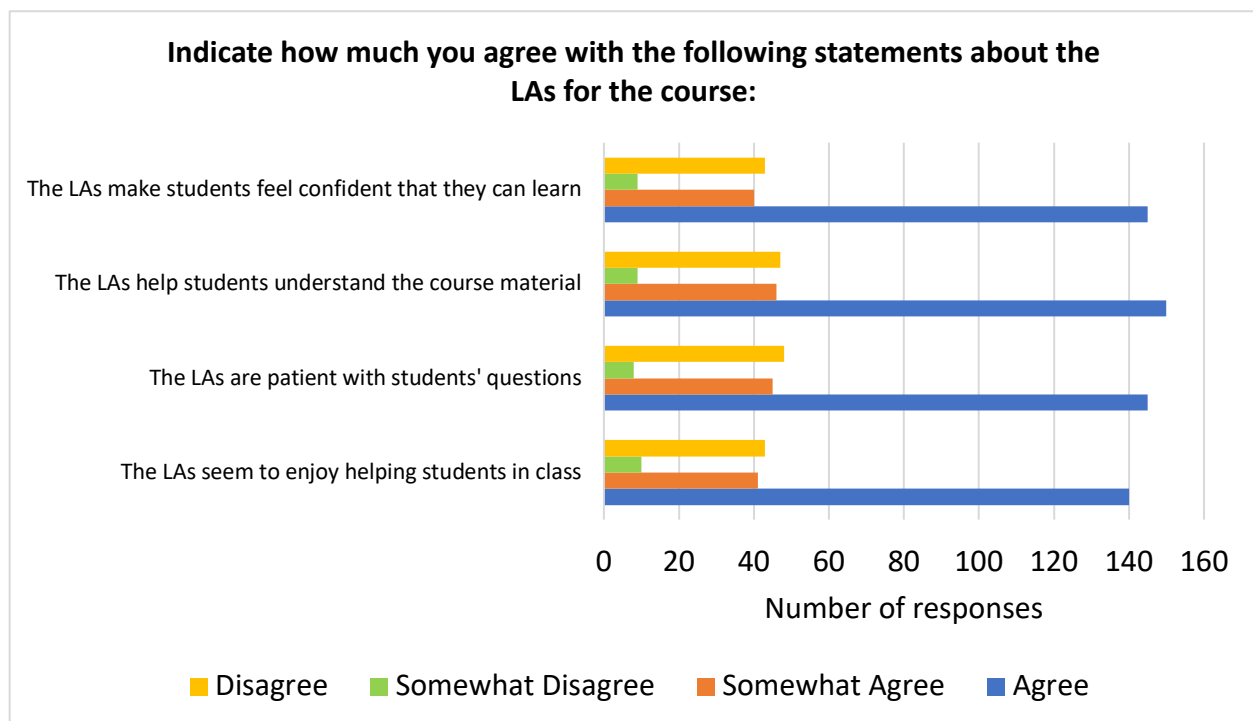


Measures of Student Satisfaction

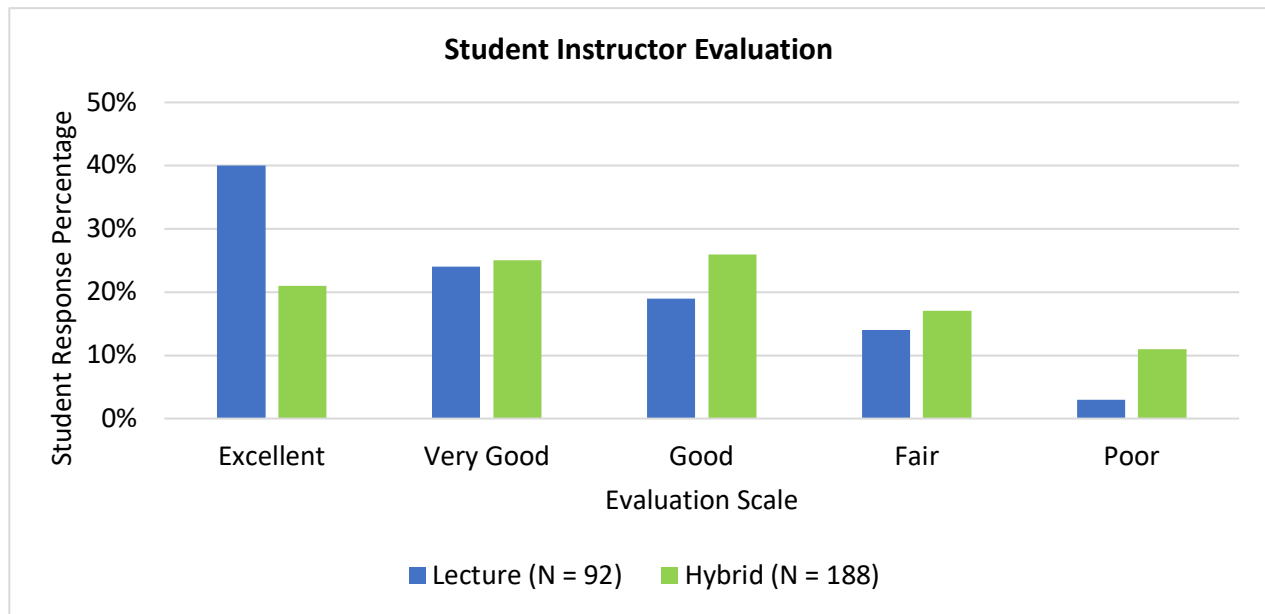
Example A: Student responses for an in-house student satisfaction survey on the perceived influence of LAs on student learning



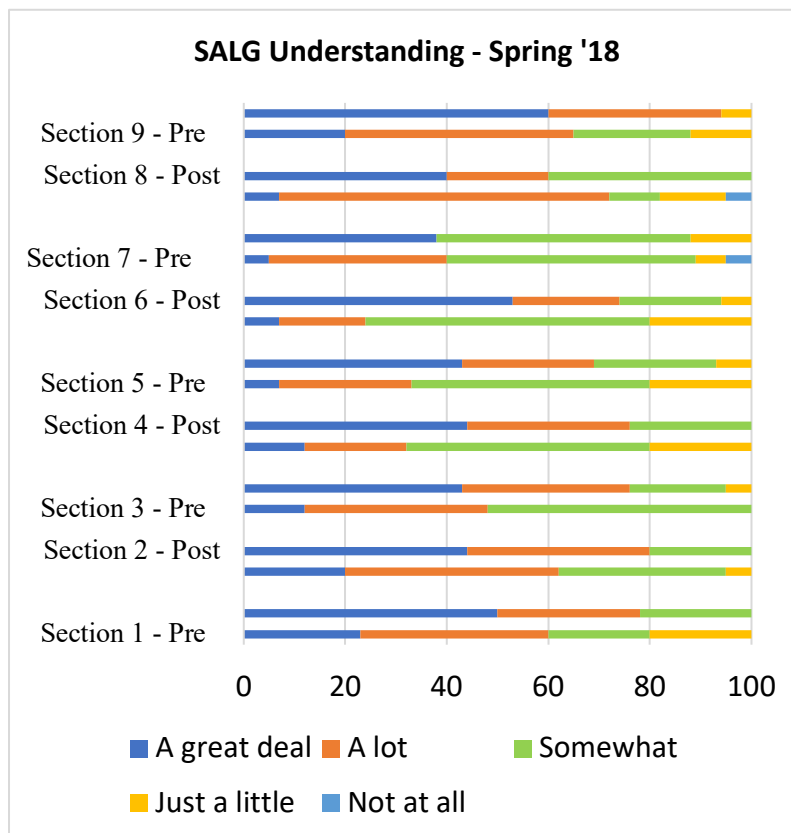
Example B: Student responses for an in-house course satisfaction survey with a focus on student perceptions and satisfaction with course LAs



Example C: Comparison of student evaluations of instructor by course format



Example D: Student Assessment of Learning Gains (SALG) pre- and post-understanding scores. SALG is a free assessment tool that can be used to understand things such as which aspects of the course students felt supported their learning. To learn more about the SALG, click [here](#).



RESOURCES

Concept Inventories: There are various concept inventories by discipline, below are some CI faculty have used in the past:

Biology: Biology Concept Inventory (BCI); Genetics Concept Assessment (GCA)

Pre-Calculus: Pre-Calculus Concept Assessment (PCA)

Chemistry: Chemistry Concept Inventory (CCI)

Physics: Force Concept Inventory (FCI); The Force and Motion Conceptual Evaluation (FMCE)

Programming: Java Programming Concept Inventory

Other Resources:

FIUs Center for the Advancement of Teaching (CAT): CAT has created a list of data sources that can be used to assess your course. They include data from students, peers, and self-reflection. Click [here](#).

Learning Assistant Alliance Transforming Courses: LA Alliance list of links to disciplinary- specific resources to support course transformation. Click [here](#)

DBER Listserv: Provides information about the DBER seminar series which focus on STEM education and other related talks. Please contact Tanya Mishra (tmishra@fiu.edu) to join.

Network of STEM Education Centers (NSEC)

<https://serc.carleton.edu/StemEdCenters/index.html>

NSEC STEM DBER Resources list: Includes resources for chemistry, computer science, economics, engineering, geosciences, life sciences, mathematics, physics, and multi-disciplinary.

https://serc.carleton.edu/StemEdCenters/toolkit/DBER_resources/index.html