Overall, Mr. Guest and I did not accomplish all that we wanted to achieve this semester. This was mainly due to a last minute restructuring of the course. One of the sections I was teaching was combined with a section Mr. Guest was teaching to become a double section. Many of the group assignments and in-class activities were designed for a class size of 35 students, and therefore had to be redesigned to work for a larger class. We both also taught normal sized sections that needed to be consistent with the larger section. We also had to figure out how to team teach the larger section while maintaining uniformity for the students. In the end, instead of completely redesigning the data collection process, we made the preexisting method work for the large class.

Having to redesign many of the core components of the class was a huge downside to having the new large section. However, the large section allowed us to work with student-collected data live in class, since we would have a large enough sample size, rather than wait until the next class where we would work with data from several sections combined. We used the same method of having students input their data into a Google form, but students did this in class on laptops or smart devices rather than at home. We redesigned many of the data-collecting activities so that it would not take much time to input the data. The Google forms saved the data into a spreadsheet from which we used in the statistical software JMP to analyze the class’s data. This worked out wonderfully because students could immediately see the results of the experiments and activities, and could therefore more easily connect their experience with the theory.

An example of one of the activities that we did had the students roll dice and record what they rolled for a set amount of time. Thus, every student would have a different sample size. Students then calculated a confidence interval for the mean value rolled based on their data. Using a short cut on their calculators, Mr. Guest and I would check their response. When their answers were deemed correct, students input their confidence interval into a Google form. This only required them to input two numbers. Once complete, we had another short activity for them to work on until the rest of the class was done. Then we took all the class’s confidence intervals and used JMP to plot all of the intervals against each other. It was very clear from the image what a confidence interval is, and, since the class was large enough, we got two confidence intervals that did not contain the actual mean and thus illustrated the concept of the confidence level perfectly.

The student assessment was given at the end of the semester as a Google form. We mainly asked questions about the in-class data collection activities with the immediate analysis on JMP. Two questions in particular were, “Which of the following learning materials did you find helpful?” and, “Which of the following learning materials did you find unhelpful?” Choices for both included lecture videos, in-class lectures, MyStatLab homework, in-class activities, notation quizzes, written homework, and other. Students could choose more than one answer. In the “helpful” question, in-class activities was the most chosen answer by far; 84% of those that responded chose it. In the “unhelpful” question, we got the opposite response. Only 17.4% of the responders chose in-class activities. In another question, 80% of students chose “excellent” or “good” for the ability of the in-class activities to engage them. Other answer choices included
“okay”, “poor”, and “very poor”. In the question, “Did you feel like collecting and working with your own data helped you better understand the material?” only 12% of responders chose “no” where the other responses were “yes” and “somewhat”. Ninety-two percent of the responders said that the in-class activities supported the overall objectives of the class. One of the comments we received in the student assessment was, “Honestly, I have always been bad at math, and I really felt like this class helped me learn so much better than any other math class. I actually made much better grades than in previous math classes. I believe you give just enough work that I am constantly using what I learned. You don’t move on too fast, and you build on what you taught. You are teaching this class perfectly.” Another response summed up the negative comments we got. “Better use of class time. Sometimes I was unsure of what the point of an exercise or lesson was.” For next semester we definitely need to be clearer about the goals of the in-class activities. This semester, we often had an activity prepared right before class since we were redesigning it, and therefore did not present it with the best clarity.

Overall, the student assessment showed strong positive responses to the in-class activities and data collection analysis in class. The last minute restructuring of the large section proved to be a great thing, as we were able to do many activities live in class with immediate results.