FINAL ✦ PORTFOLIO

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My Growth as a Statistician

This semester, I've grown a lot as a statistician and student, especially in understanding how to approach large datasets and choose the right statistical methods. One key improvement has been learning how to connect research questions to the right tests. For example, in our final project on measles vaccination rates, I worked with my group to decide which tests, like chi-squared and z-tests, would best answer our hypotheses. This helped me see how to match the analysis to the data and the question we wanted to explore.

I've also improved in interpreting results and explaining what they mean. Before, I struggled to move from calculations to clear conclusions, but now I feel confident turning numbers into insights. The final project really shows this growth—it pushed me to combine everything I've learned this semester to make meaningful conclusions. Overall, I'm much more confident tackling real-world problems with data and finding answers through statistics.

Semester at a Glance

Category	My Assessment	Dr. Moore's Assessment	
HW 1	E		Attempt 1: M/E, Attempt 2: E
HW 2	E		Attempt 1: M, Attempt 2: E
HW 3	E		Attempt 1: M
HW 4	E		Attempt 1: E
HW 5	E		
HW 6	E		
HW 7	E		
Midterm 1	E		Attempt 1: X, Attempt 2: E
Midterm 2	E		
DAP Proposal	E	E	
DAP Summary	E	E	
DAP Presentation	E	E	
DAP Within Team Eval	E		

Homework

Growth - Homework 2

Homework 2 for STAT 630 really shows how much I've grown in understanding and explaining data. In Problem 5, my first attempt didn't fully answer the question because I wasn't clear enough about the confounding variables between sex and salary. After revising, I focused on "rank" and "field" as the key confounding variables and backed that up with clear stats, like how rank affects salary and how males and females are distributed across fields with different pay levels. I also added proper titles to my plots, which made them look more polished and professional. This revision process taught me a lot about being clear and precise in my explanations, and I feel like I'm getting better at thinking and working like a real data analyst.

Mastery - Homework 4

Homework 4 really showed my understanding of the Central Limit Theorem (CLT) and sampling distributions. In this assignment, I successfully simulated sampling distributions for various sample sizes and compared the empirical results to theoretical expectations, showing how the CLT explains the normality of sample means as sample size increases. I also successfully simulated data, compared sample results to theoretical values, and created clean, professional "publication-quality tables". I also explored why the t-distribution is important for small samples, which helped me understand when and why to use it. Writing about the problems with p-values made me think critically about their limitations. This assignment taught me essential concepts like confidence intervals and sampling theory, which I know will be valuable in my future career as a statistician or data scientist.

Midterms

Midterm 1

The revision process for Midterm 1 had a big impact on my learning. Initially, I struggled with expressing ideas clearly and fully addressing some questions, especially in English. I used Google suggestions rather than my own words for my midterm 1. Through revising, I focused on using my own words, providing more detailed explanations, and making sure my answers aligned with the prompts. I realized how important it is to carefully consider potential biases in different sampling methods. At first, I thought stratified sampling was straightforward, but I've now learned that each method has its own challenges, and I need to think critically about how to minimize bias. I also gained a better understanding of how to visualize relationships between variables effectively. While I initially relied on bar plots for categorical data, I now see that other visualizations, like box plots or histograms, can often provide clearer insights.

Midterm 2

For Midterm 2, I learned the importance of carefully handling data values during cleaning and analysis. While it might seem convenient to remove unusual values or outliers, I now understand that this can lead to the loss of meaningful data that could provide insights. Instead, identifying and addressing these values thoughtfully is essential. I also improved my understanding of checking statistical conditions, such as the large counts condition for proportion tests, which ensures the validity of hypothesis testing. Additionally, revising my visualizations helped me focus on how to present data, for example, using histograms to show distributions or summarizing trends effectively.

Mid-Semester Surveys

Mid-Semester Survey 1

*How do you feel about your participation during class? This does not only mean raising your hand to ask/answer questions, but also your participation in group activities.

I feel good about my participation in class. I consistently engage in group discussions, contribute ideas, and collaborate with my peers to ensure we're all understanding the material effectively. I also answered Wendy's questions in class sometimes as possible as I could.

*How did you study for the first midterm?

I studied for the first midterm by reviewing my class notes, making notes from my three revised homeworks, and read handout files in class. I also discussed and studied codes with classmates to reinforce key concepts.

*Now that you've taken the midterm, how do you want to study next time?

Next time, I want to start studying earlier and break the material into smaller chunks. I think I'll also focus on more challenging problems and maybe set up a regular study group to keep things fun and interesting.

*How do you feel about "ungrading"? What do you like about it, dislike about it, or have questions about?

I think ungrading (rating for assignment using the EMRN rubric) is a cool idea. I like that it focuses on learning instead of just grades, which takes some pressure off. But I wonder how it helps track progress and keeps motivation up without those letter grades.

*If you were going to give yourself a grade right now, what would it be?

A

*Explain how you arrived at this grade.

I'd give myself an A because I've really committed to understanding the material and actively participating in class discussions. I've been diligent with my assignments, and I even revised my homework to ensure I grasped the concepts thoroughly. Moving on, I'm determined to keep that momentum going. I plan to work even harder in the statistical methods class with R Studio. I'll focus on practicing coding more regularly and applying the concepts we learn in real-world scenarios. I want to make sure I fully master the material and feel confident in my coding skills.

Mid-Semester Survey 2

*How do you feel about your participation during class now compared to your answer from Mid-Semester Survey 1? Has your participation changed?

I feel even better about my participation now compared to before. I've been raising my hand more often to answer Wendy's questions and actively joining group activities. I've become more confident in sharing my ideas and explaining concepts like hypothesis tests to classmates. My engagement has improved, and I've contributed more during discussions, making sure I help the group and understand the material deeply. It feels great to stay involved!

*How did you study for the second midterm? Did you change anything from how you studied for the first midterm? (See your response from Mid-Semester Survey 1)

For the second midterm, I kept most of my study methods but focused on improving them. I reviewed my class notes, went over my revised homeworks carefully, and re-read the handouts. I also watched Wendy's recording videos a second time to make sure I fully understood the material. I spent extra time organizing and practicing the hypothesis tests (prop.test, t.test, chisq.test) to better understand their functions and conditions for a more effective exam performance.

*How does ungrading in statistics compare to traditional grading?

Ungrading in statistics focuses more on learning and less on grades. Unlike traditional grading, which can stress students out, ungrading helps them focus on understanding the material and improving. Professor Wendy Moore likes ungrading because it encourages students to try new things without fear of failure, work together, and think more deeply. This way, students learn better and feel more confident using statistics in real-life situations.

*If you were going to give yourself a grade right now, what would it be?

A+

*Explain how you arrived at this grade.

I gave myself an A+ because I've worked really hard and stayed dedicated. For homework (HW 4, 5, 6), I made sure to complete everything carefully and on time, showing strong effort and understanding. For Midterm 2, I studied thoroughly, answered with accuracy, and even revised a bonus suggestion to perfect my answers, even though they were already correct. It's because I wanted to learn more! I actively participated in Wendy's group activities, explained hypothesis tests like prop.test, t.test, and chisq.test, and helped our group by being positive and outspoken.

For our final project on Analysis of Measle Vaccination Rate in the United States, I've been fully engaged, analyzing data and contributing ideas about exemption reasons. My dedication and enthusiasm, both in class and for our project, show that I deserve this A+—not just for grades but for how much I've grown and contributed.

Final Project

What did you enjoy most about the final project?

I enjoyed analyzing real-world data to understand an important issue like vaccination rates. The project allowed me to apply the statistical methods we learned in class to something practical, and it felt rewarding to see how these tools could reveal insights about the data. Collaborating with my group also made the experience enjoyable, as we learned from each other's strengths.

What part of the final project did you find most difficult and why?

The most difficult part was interpreting the results of the statistical tests and making sure they aligned with our hypotheses. It took time to ensure we understood complex variables eg. school types and vaccination rates.

Additionally, there were too many missing values (NA) in our data, which complicated the analysis. Initially, our target question was to explore the difference in MMR vaccination rates between cities, but many cities had missing data, forcing us to change to another research topic: Analyzing Measles Vaccination Rates Across U.S. Elementary Schools.

What part of the final project did you work on that you feel the most proud of?

I feel most proud of our presentation. We carefully prepared the content to fit within the 7-minute time limit, ensuring it was clear and easy for the audience to follow. We also divided the speaking parts evenly among the team members, which helped us stay organized and avoid overwhelming the audience with too much information. The positive feedback from the teacher and receiving an "E" grade again made me really happy and validated our hard work. Additionally, I worked on applying the correct statistical tests to determine if school types affected vaccination rates, and I feel I did a good job explaining our findings.

If you had the opportunity to change something about your project, what would you do differently? Why do you think this change would improve your project or your experience? Please do not mention working with a different group. You will have the opportunity to share your thoughts in the Within Team Peer Evaluation.

If I could change something, I would have spent more time exploring additional factors that might affect vaccination rates, such as socioeconomic status or school location. Including these variables could have given us a more comprehensive analysis and improved the depth of our conclusions. It would have made the project more well-rounded and potentially uncovered other insights.

Final Grade Reflection

A

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Final Grade Reflection

I believe I've deserved an A in this course due to my consistent effort, participation, and growth. I attended every class, worked hard to complete assignments on time, and made sure I understood the material. While I made a mistake with the Midterm 1 PDF submission, I quickly submitted the Rmd file and took responsibility for it. After receiving feedback, especially during a one-on-one meeting, I focused on improving my writing and clearly expressing my ideas.

I also worked closely with my group on the final project, discussing any unclear points, which helped us strengthen our understanding and produce a better result. I applied feedback throughout the course to improve both my technical and communication skills.

Overall, I've put in my best effort, learned from my mistakes, and worked well with my teammates. I feel confident that these efforts deserve an A grade.