“What do I want to do?” This question echoed in my mind during the first year of my college career as I envisioned a future as a music professor or performer. Having excelled at playing the clarinet and piano in high school, I was confident that my path was set in music. However, as I progressed in my studies, I realized this path wasn’t what I truly imagined and did not align with my true interests. While I still enjoyed playing, I found that my passion didn’t extend to music theory or history. This ultimately pushed me to ask myself “What truly excites me?”

During my first year, I took Introduction to Statistics and Probability and Statistical Software Analysis, which ignited my curiosity. These classes sparked my interest in statistical concepts like linear regression and hypothesis testing, with a particular fascination for coding in R. As I learned more and dived deeper into the subject, I felt a strong desire to apply this knowledge beyond the classroom, so to further challenge myself, I joined an undergraduate research program by NSF at the University of North Carolina Charlotte. My project focused on the Individualized Treatment Rule (ITR), which assigns treatments based on the measured covariates. This project utilized a famous statistical research paper by Qian and Murphy from the University of Michigan. Initially, my partner and I began developing a simulation to mimic patient data from five parameters to fifty parameters. Our goal was to find the model that optimizes the treatment rule. Throughout the project, we encountered numerous challenges, including a lack of technical skills and the complexities of the mathematical concepts involved. We consulted The Element of Statistical Learning, systematically applying methods such as Linear Regression, Random Forest, LASSO, and Ridge Regression to refine our model. However, this experience drove my passion for analytical work and the iterative process of problem-solving. Despite the setbacks we faced, I was determined to push through until we

found a solution. Ultimately, my partner and I discovered Kernel regression, which successfully optimized the treatment rule. My supervisor challenged us further. He gave us a take to reduce the code's running time to enhance efficiency. He suggested that we can change the coding language or utilize the dimensionality reduction method. First, my partner and I thought of using Principal Component Analysis (PCA); however, it sacrificed too much prediction accuracy. We also tried to translate our R code to Python, and the running time was about the same. Finally, we came across High Performance Computing (HPC), and this significantly improved the running time without sacrificing any prediction accuracy. In the end, we presented our findings at a research conference, and this was a proud moment for me, reflecting the hard work and dedication we put into the project. Throughout this experience, I learned the crucial role that statistics plays in informing decision-making and conveying facts to people. It was at that moment that I decided to pursue a career in analytics.

As I progressed my studies in statistics, I switched my major to Statistics and Mathematics with an emphasis on Actuarial Science. I chose this path because I believe it perfectly aligns with my interests in analytical work and my desire to help people make informed decisions. After studying the actuarial exams Probability and Statistics for Risk Modeling, I became more fascinated by the topic of statistics. I applied my newly acquired knowledge, using R to analyze data sets and implementing various statistical techniques. In addition to my academic pursuits, I explored opportunities to extend my impact beyond the classroom. For example, I participated in the KENO project under Dr. McIntosh. Last semester, I presented at the research conference and validated our calculations through a simulation of a hundred million trials. Furthermore, I coded a compelling data visualization that shows the probability of winning the KENO. Additionally, I participated in DataFest, which allowed me to apply my technical

skills to real-world data concerning the performance of numerous textbooks. My team focused on data cleaning and analysis, examining differences in time commitment between students who passed and those who failed. Our goal was to analyze which textbook produces the most optimal result with the lowest time commitment and highest pass rate. We presented our findings, and as a result, we clinched runner-up in Best Visualization.

The Accelerated Master's in Statistics program at the University of Missouri is a perfect fit for my academic interests, career goals, and personal values. An accelerated master's program will allow me to expedite my education, enabling a quicker transition into the workforce where I can apply my knowledge in real-world scenarios. I believe that this timely approach will enhance my ability to contribute effectively to the actuarial profession and make a meaningful impact on the organizations I work with. As a self-motivated and enthusiastic individual, I am confident that my personal qualities align with the values and culture that epitomize the University of Missouri. I am eager to continue pursuing my passion for statistics at the University of Missouri and I believe I am an ideal candidate for the Accelerated Master's program in Statistics at the University of Missouri.

In conclusion, through my experiences and my time at the University of Missouri, it has become clear that I have a huge passion for statistics. My strong academic background, along with my dedication to applying my skills in a meaningful way, will enable me to contribute meaningfully to the diverse and driven community at Mizzou. I am particularly excited about courses like Bayesian Analysis, Theory of Linear Model, and Mathematical Statistics, which I believe will strengthen my foundational knowledge in statistics Ultimately, my goal is to become a professional actuary, and I see this accelerated program as the perfect step toward achieving that goal while deepening my appreciation for the power of statistics.