

STATEMENT OF PURPOSE- [REDACTED]

[REDACTED]

Dear Admission Officer,

My name is [REDACTED], a Nigerian citizen. I received my bachelor's degree in Applied Statistics from [REDACTED], Nigeria. I graduated with honors and was among the top 5 percent of my graduation class. I hope to apply for the Master of Science (M.S.) program in the Department of Mathematics & Statistics, [REDACTED]. My future academic goal is to earn a doctorate and become an international research expert in the field of biostatistics and epidemiology.

I am applying to the M.S. program in the Department of Mathematics & Statistics at [REDACTED] because of my interest in public health. I am interested in learning how to use statistical modeling techniques to derive insights, patterns, and correlations in public health data. I desire to improve the quality of public health at a reduced cost by using these techniques. I believe information from public health data analytics can help shape public policy and bring new insights about the spread of epidemics and viruses like Ebola and Coronavirus. For instance, during the Ebola and coronavirus pandemics in West Africa, I learned about how local agencies were using statistical modeling techniques, such as SEIR (Susceptible, Exposed, Infectious, Removed), to analyze public health data, investigating the spatial and temporal patterns of the disease as well as the correlation between mortality rate and genes in the human population. Also, during my undergrad in Nigeria, I carried out a capstone project titled: "Categorical Analysis of the Relationship between Breast Cancer in Nigerian Women and their Age, Risk factors and Genes: Using Dummy and Effect coding." Using basic computational statistical tools like SPSS, Microsoft Excel, and Minitab, I studied the correlation as well as the causal relationship among the selected variables in the different population demography in Nigeria. I realized there is a correlation between breast cancer and the mutation of the BRCA1 and BRCA2 genes. I believe investigation into the field of Genome-wide association studies (GWAS) which focuses on detecting associations between common genetic variants and complex diseases could provide gleaning insights in precision oncology. I am also interested in studying the stochastic/Bayesian variants of SEIR models. Using the statistical modeling skills acquired at [REDACTED] I hope to investigate the best distribution for the latent and infectious times of new infectious diseases using model estimation/selection techniques. This study could provide numerous potential benefits in improving public health response to pandemics such as coronavirus, and could be the focus of my future doctoral study after graduating from the M.S. program at [REDACTED].

Furthermore, In the process of studying public health epidemics in West Africa, I learned about several statistical model selection techniques for fitting distribution to real-world experimental data. I learned about the Akaike information criterion (AIC) and Bayesian information criterion (BIC). At [REDACTED], I hope to study more advanced statistical model selection techniques. I believe some of the statistical techniques applied in econometrics, financial analysis as well as psychology could find a useful application in biostatistics, public health research, and epidemiology. This is one of my motivations for applying to the M.S. program at [REDACTED]. Because of my inclination towards academic research, I would be glad to be considered for research assistantship positions at [REDACTED]. This will better prepare me for my doctoral studies after the completion of my M.S. program. I strongly believe statistical modeling and model estimation are vital to public health safety. In the future, I hope to fly the flag of [REDACTED] as a successful alumna shaping the field of biostatistics and epidemiology.

Moreover, I have a background in applied statistics. I believe this makes me an ideal candidate for the M.S. program at [REDACTED]. I have experience in experimental design, data capture, data cleaning, statistical analysis, and data visualization. Additionally, I have some experience in teaching statistics to other students. I have taught a small group of undergraduate students how to perform statistical analysis on real-world data using techniques such as regression and ANOVA analysis. During the lectures, I introduced the students to statistical tools such as SPSS, Excel, and Minitab. I was able to recognize the different learning abilities of my students and tried to help them as much as possible. I have also presented tutorials to undergraduate students on how to perform prediction analysis using ARIMA models on time series data. I believe that through these experiences, I have developed some vital communication skills necessary for teaching and research as a graduate student at [REDACTED]. Therefore, I am open to available teaching assistant positions in the department.

Finally, I believe my passion for research, academic writing skills, software skills, and motivation will help me to become successful in the graduate program at [REDACTED]. I hope to be considered for research and teaching assistant positions in the department. I scored a 308 on my GRE and an overall score of 7.5 on my IELTS. I will do my best to maximize whatever privilege is afforded to me by [REDACTED].

Thank you,
Sincerely,
[REDACTED]