

Statement of Purpose

From an early age, I have possessed an instinctive curiosity that left me intrigued about life, its processes, the human body, and health. I remember wondering how medical doctors could figure out treatment options for patients and the whole process that went into developing new therapeutic agents. This metamorphosed into an interest in Health Sciences during my formative years as an undergraduate. While it was impossible for me to study Biomedical Sciences in my country at the time, I quickly seized the opportunity to get my bachelor's degree in Biology from the Federal University of Technology, Akure, Nigeria. I was intrigued by the interconnectedness of the courses- Histology, General Microbiology, General Cytology, and Applied Parasitology. They involved studying the molecular basis of cell structure and function; microscopy; elaborating on animal epithelial tissue types; and the zoonosis and pathology of significant parasites concerning pathology and diagnostic techniques of parasitic protozoans and helminths causing human and animal diseases. I particularly excelled at Applied Parasitology, General Cytology, and Histology courses.

In line with my budding interest, I sought a faculty whose research was health-related during my undergraduate study. My research focused on the “effects of untreated abattoir effluent on the dry biomass, proximate composition and heavy metal accumulation in *Amaranthus hybridus*” a project of biomedical importance, and my thesis advisor (Dr. Babajide Macaulay) and external examiner awarded me an A-grade. This training further triggered my interest in biomedical sciences; thus, for my master's degree, I sought to study the advanced approach to understanding underlying disease processes and their application to resolve human diseases.

Infectious diseases continue to pose serious health challenges to humans, both in the United States of America and globally. According to the 2016 CDC report, 15.5million Americans were primarily diagnosed with infectious and parasitic diseases (National Ambulatory Medical Care Survey: 2016). Thus, necessitating the need for a better fundamental understanding of factors relevant to infectious diseases, including but not limited to antibiotics resistance, disease pathogenesis, and immune suppression. My research interest is the comprehension of mechanisms underlying microbial resistance to antibiotics, adaptive changes in microbial genomes enabling their pathogenicity, and the development of vaccines to combat existing and emerging infectious diseases. I, therefore, decided to pursue my master's degree in the US for the opportunity to carry out advanced research in state-of-the-art facilities

Currently, as a master's student of biomedical sciences at Auburn University, working with Dr. Chengming Wang, I have gained excellent research skills and proven my academic competence through my dedication and commitment to the field. With the occurrence of antibiotic resistance threatening the efficacy of existing drugs, especially drugs of last resort for treating human diseases, my research is focused on molecular characterization of carbapenem resistance in *Enterobacteriaceae* isolated from humans, animals, and the environment. With the research skills garnered over time, I have used PCR techniques and bioinformatics tools to analyze the molecular characterization of carbapenem-resistant *Enterobacteriaceae*, both in the USA and in collaborations with my home country, Nigeria. In addition to my major research, I have also carried out other projects in which I utilized serological approach for diagnostic measures, such as;

serological prevalence of *Leptospira spp* in feral pigs and the first report of *Rickettsia felis* in mosquitoes in the USA. I have publications with reputable journals in my quest to share my research findings with the academic community.

My impetus to pursue a doctoral degree in Biomedical Sciences at Tulane University stems from the opportunity to carry out cutting-edge research with renowned faculty and the prestigious reputation maintained by your school as one of the United States' best schools. Furthermore, Tulane University provides an enabling environment for undivided attention to graduate study by providing generous financial assistance to admitted students. These advantages will no doubt spur me to do my best if accepted. I have identified a few faculty members in your program with whom my research interests strongly align- **Dr. Lisa Morici**, **Dr. James McLachlan**, and **Dr. Jacob Bitoun**, for the possibility of getting a Ph.D. position in their lab and working under their supervision.

My long-term career goal is to become a seasoned biomedical scientist and health consultant collaborating with relevant agencies in proffering solutions to human diseases while using the acquired understanding of their pathogenesis. Hence, it would be an excellent opportunity to carry out research pertinent to the comprehension of the cause, progression, and mitigation of human diseases and to systematically integrate the knowledge acquired and apply it all adequately in the health sectors in the US, my home country, Nigeria, and globally at large. I believe that my biomedical science research experience, coupled with my strong leadership qualities and ability to adapt fast, learn quickly, and thrive in a new environment, will aid in bagging my doctoral degree in biomedical sciences at Tulane University. I do not doubt that this program will sharpen my knowledge, hone my research skills, and lay the necessary foundation for Biomedical Sciences' career.