

## **Final Reflection on My 2025 Summer Enrichment Experience at the University of Chicago Summer Immersion Program.**

*By Laila Al-Asfour*

This summer, I had the incredible opportunity to attend the University of Chicago's summer immersion program, where I participated in the course Contagion: Infectious Diseases and Agents. Over the span of three weeks, I was granted the opportunity to explore several different areas of study, such as virology, epidemiology, immunology, and public health. I gained invaluable hands-in experience with laboratory techniques such as PCR, ELISA, Gel Electrophoresis, and CRISPR that only furthered my passion to pursue an education in biomedical sciences.

This course had a focus on real-world applications using lab-based experiments to explore how diseases spread and the methods that scientists use to combat them. One of the most engaging labs for me was the CRISPR lab, where we used a diagnostic simulation involving DNA targeting to "cleave" a section of viral DNA to model how the process can function as a bacterial immune system. The real-world applications of CRISPR were especially engrossing when discussed in the context of gene therapy and ethical considerations. I was also particularly interested in our HIV simulation, where we used an indirect ELISA method to detect the presence of antibodies in mock patient samples. While exploring these different lab techniques and concepts, I was supported by my lab partner and led by Dr. Fineschi— both individuals who I am so grateful for as being key contributors to my academic experience.

In addition to the hands-on lab work, I completed a final research project on Chronic Lyme Disease and Post-Treatment Lyme Disease Syndrome (PTLDS). This project allowed me to explore the mechanisms of the bacteria *Borrelia burgdorferi* and how it evades the immune system by forming biofilms and changing forms. I explored the controversy over whether the syndrome was a result of an ongoing infection or immune dysfunction, and how there have been emerging links between PTLDS and Long Covid. Working with two of my fellow dedicated classmates, we were able to apply the concepts of immunology and diagnostics to real-world applications.

Outside the lab and classroom, I was engaged in a collaborative environment with students from all across the globe. We bonded over shared interests, exchanged ideas, and learned how to navigate college life together. From long study nights in the common areas to navigating databases in the library, I learned how to take the initiative in my own learning. I was also able to take advantage of the lectures held during our lunch breaks in order to find more perspective on the many career and education paths available within medicine and research.

While the academic experience was incredibly rewarding, I also made the time to explore the vibrant city of Chicago. I was able to visit The Bean, engage in a classical musical festival in Millennium Park, and even watch Beauty and the Beast on Broadway. These moments brought a fun balance to the intensity of the program and showed me just how much this university has to offer. This experience challenged me academically, inspired me personally, and brought me closer to the future I hope to build one day in science and medicine. I am incredibly grateful for the opportunity and the support from the Garwin Family Foundation that made this unforgettable experience possible.