Final Reflection on
My 2015 Summer Enrichment Experience
at the University of Chicago

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The Garwin Family Foundation’s generosity allowed me to attend the University of Chicago’s three-week Summer Quarter Offerings for High School Students. I enrolled in two undergraduate courses: “The Workings of the Human Brain: From Brain to Behavior” and “Quantitative Modeling in Biology.”

In these classes, I had the opportunity to take classes alongside other high schoolers, undergraduates from the University of Chicago, and visiting undergraduates from other universities. This diverse learning environment provided the opportunity to study neuroscience and quantitative modeling in biology with two of the University of Chicago’s notable professors, Dr. Megan McNulty-White and Dr. Dmitry Kondrashov.

My Daily Routine
Each weekday, I attended my neuroscience class from 10 a.m. to noon, and my quantitative modeling in biology class was from 1:30 p.m. to 4:30 p.m. During lectures, I listened, took notes, and participated in class discussions. My quantitative class also required that we write code during our lab time. Both classes condensed a quarter’s worth of class material (10 weeks) into three intense, fast-paced weeks. We covered at least a chapter’s worth of material each day. After classes, I spent time studying and completing problem sets and computational assignments. And every evening and on the weekends, our Residential Assistants (RAs) planned a variety of fun activities that helped us relax, meet other students, and explore Chicago.

My Classes
Each day offered a different challenge. I was fascinated by the evolution of scientific inquiry in the field of neuroscience, as well as by the structural organization of the nervous system and all of the inter- and intra-neuronal interactions that make up the responses of the nervous system, such as the action potential and the synapse. We studied how these interactions and malfunctions within these interactions make up the basis for emotion, memory, learning, and mental illness.

This class was easily the most difficult one that I have ever taken because of the sheer amount of information that we covered and were expected to master by exam time. As I had little time to become acclimated to my first college-level course, I experienced a lot of difficulty in adjusting to the rigor and pace of a condensed course, which presented even more challenges than the typical undergraduate experience. However, I did not let my frustration stop me from continuing to do my best in class, and I combatted my concerns with more study and review. Despite—or maybe even because of—the fact that
I found this course difficult, I enjoyed going to class, as I could immerse myself in a field that I had only dabbled in previously. When given the choice, I will always prefer being in over my head in a challenging environment, rather than selecting a less stimulating and less rigorous circumstance.

I did not have any previous knowledge of quantitative modeling in biology before I took the class on it at the University, so I did not really know what to expect before I made it to campus. I learned how to manipulate the R programming language to interpret, run simulations on, and present biological data using mathematical principles. Suffice it to say, that, as a person who is not the fastest to understand math, I was again presented with more hurdles to overcome in order to perform well in the class. What I could not have expected, however, was the extent to which I truly loved going to class every day. I had no prior experience in coding or calculus, but I ended up enjoying the ways that I could blend them both in my computational assignments to view biology in a different light. Aside from the hands-on experience with coding, we were expected to present on a recently published biological paper that had a significant amount of quantitative content. I chose to present on a topic that dealt with the biophysics of ligand/ligand-receptor binding. (If one is so inclined, here is the technical synopsis: the scientists in the study imaged G protein-coupled receptors to quantify their ligand-binding free-energy landscape.)

**Outside of Class**

I had plenty of opportunity to have fun outside of the classroom while at the University of Chicago, too. Each night the RAs, who were current students at the University, had different activities planned for us— from going to get $1 milkshakes at the Med on Wednesdays (which is a University of Chicago tradition) to sports, movie nights, and venturing out to explore downtown Chicago. We were also able to stay at the dorm or library to study, finish homework, or simply just hang out with our newfound friends if we did not feel up to participating in the activities. Most nights, I spent time with my friends in one of the dorm’s lounges, where we usually ordered take-out, watched movies, and talked.

My favorite outing during my program was when my friends and I decided to go to the beach on Lake Michigan because it was the first time I had ever been to a beach. I had a ton of fun, and that afternoon will definitely remain one of my favorite memories.

**My Personal Growth**

I feel as though I learned the most not about the subjects that we covered in class, but, rather, about myself as a person. For the first time, I was entirely on my own in the third largest city in the country, so I had to figure out really quickly how to handle my newfound independence. As I discussed earlier, one of my trials was grappling with how to perform well in this new learning environment of undergraduate education. I also had to learn how to take care of my health while away from my parents and in a new and intense environment. My time at the University of Chicago taught me a lot about prioritizing my health and handling stress. In addition, I succeeded at navigating social situations as I had to fend for myself within an entirely new group of people.
Deeply personal lessons like these are the ones that I feel will truly stay with me for my entire life, not to mention my newly expanded knowledge base from the lessons I learned in class. I am incredibly thankful to the Garwin Family Foundation for sponsoring my trip and allowing me the chance to explore myself.