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

By Mollie Mandell

Applying to the Garwin Family Foundation sponsorship program is one of the best choices I have ever made. In October 2024, my school sent out an email titled “Enrichment Opportunity for Advanced Students.” At first, I couldn’t understand what the email meant by “prestigious summer experiences.” They’re just not really discussed at my school or in my family. Both of my parents were first-generation college students who applied and went to high-acceptance schools in a time of limited competition. The email advertised an informational meeting the next week, so I made a plan to attend in order to learn more. One problem, though: I wasn’t able to go. I had a headache that day and was just trying my best to get through my classes. So, a couple of weeks later when my friend asked me if I had heard of the Garwin Family Foundation, I told him I had but I wasn’t sure if I should apply. He encouraged me to. I looked into the sponsorship and programs offered and began to get excited. There were so many courses in my interests—biology, evolution, creative writing. I just had to give myself a chance. I had never applied to anything like it before. Over the next four months, I went through two rounds of applications and an interview. The interview and resume writing skills I learned in that time will help me in the future, especially with colleges and jobs. When I got the acceptance email while on a run before school, I had to contain my shouts of elation (I’m not sure the residents of California St. would’ve approved at 6:30 am). Then, when I was accepted to my program of choice during rehearsal for a musical, it set in that in five months I would be studying the topics I loved at a place I hoped I would love.

I attended the University of Chicago 3 Week Immersion program. The class I took was called Biology and its Modern Applications, which was taught by Professor Pliny Smith and TA Vivianna De Alba. I chose that course because I loved my Advanced Biology class, but wanted to know more (especially about biotechnology), and AP Biology is not offered at Carterville. It was my first choice, but I also applied to Biotechnology and The Biomolecules of Life. I think that those would have been very fun classes, but I’m happy with the decision I made. I had never heard of the University of Chicago before I started to research the Garwin Family Foundation sponsorship. It’s a good school, but it’s not a household name around here. When I told people I was applying to a program there, they thought I was referring to University of Illinois Chicago (UIC). However, as I started my applications, I realized that UChicago was my favorite summer program option. My dad grew up in Chicago, so we’ve been there plenty of times and have a lot of friends and family there. I love the city; there’s so many great opportunities there. I also heard that the academic rigor of UChicago’s Immersion is greater than that of University of Michigan from Garwin alumni.

Before I got to UChicago, I had a lot of anxiety about the program. What if I didn't make friends? What if nobody liked me? What if I couldn't handle the workload? Would I be able to live on my own? What if I was lonely? All of those questions and more rushed through my head on the drive up to the city. I stayed close to my dad as I checked in and was barely able to eat the Italian sub from Bari Foods that we shared as our last meal together for a while. I wanted so hard to live up to the expectations that were set for me. In the months before I went to the program, people told me that they were proud of me and that they knew I was going to do great. I, personally, did not have that confidence in myself, but that only built up right before I got there. It was such a sudden bout of self-doubt that I was worried I would feel that way for the whole three weeks. Luckily, my anxieties were unfounded.

The first week of the program eased us into our courses and the schedule. The first day was orientation, where I met one of my best friends, Aashna. The next day, we did tours of campus and went to different shops around Hyde Park. It didn't really feel like the program started until Wednesday, the first day of classes. That was when I started to solidify my friend group. That day, we had a two-hour biosafety lecture and then did a lab on lab safety. It was a lot, but I probably needed to learn. One of the problems I had was that I didn't know you needed to wear pants in a lab and didn't bring any. That seems obvious in retrospect. (It's okay, though; we never used pathogenic bacteria.) On Thursday and Friday, we had lectures on the meaning of biology and cell structure, respectively. We also got to see the posters made by the Research in Biological Sciences (RIBS) program, which sounds very cool. At the end of the week, I felt a lot better than the start. All of my friends were amazing and the course covered topics I enjoy. We also got to go on weekend trips. On Saturday I went to the Oak Park Public Library Friends Book Fair, where they were selling discounted books that they had excess of. Carterville's Library, Anne West Lindsey, has an annual book sale (though it's obviously much smaller), so I was familiar. Oak Park Public Library is huge! It has shelves upon shelves of books. I ended up buying five books for $10. You can't even get one book for that much nowadays, so I was satisfied. We also went to a candy shop and some of my friends got poke bowls afterwards. Then, on Sunday, I went to the Lincoln Park Zoo and the beach. I had already been to the zoo before, but it's been a long time. I really enjoyed it. My favorite part of the zoo is a room where there are birds flying around.

The next week was the most interesting one of the course. We had lectures on cancer and the biology of aging, which I was fascinated by. My professor teaches a class on those topics in the school year, and I could tell because it shaped how he taught. He kept going back to telomeres—the caps at the ends of chromosomes. Cells can only divide so many times (the Hayflick limit) before becoming senescent (no division) because telomeres get shorter during DNA replication. However, cancer cells can become immortal (like in the case of the HeLa cell line from Henrietta Lacks) if they have an enzyme called telomerase that extends the length of telomeres, and most of them do. That is one reason why cancer spreads so much. I really enjoyed that lecture because

it helped me understand a group of diseases that is presented as an unstoppable force. That is why biology is such an appealing field to me—it answers questions about humans and the organic world we live in. We also had a guest speaker that Wednesday, Dr. Fernando Nieto from SUNY Old Westbury, who spoke about computational biology and data. Our labs that week mostly focused on analyzing DNA samples by isolating, amplifying, sequencing, and quantifying them. We did polymerase chain reactions (PCRs) to increase the amount of DNA in the samples and then gel electrophoresis to see if the PCRs worked. We also got to perform an enzyme-linked immunosorbent assay (ELISA) to test for COVID-19 proteins in different samples. ELISAs are very useful for rapid antigen and hormonal tests. That weekend, I went to the farmer's market with my friends.

The final week was bittersweet. The lectures were mostly on topics I already knew a lot about (evolution, mutations, genetics, and ecology), but there was an interesting one taught by the TA about biotechnology. In the lab, though, we performed clustered regulatory interspaced repeats (CRISPR) gene editing to disrupt the lacZ gene in *E. coli*. The bacteria would be white if the edit was successful and blue if it wasn't. CRISPR was the perfect final three labs because it built on all of the things we had been doing throughout the course: we did multiplex PCRs, gel electrophoresis, and plated samples. Our CRISPR was successful (as determined by the gel electrophoresis) despite our plates looking wrong. Outside of class, it was crunch time for the final project. It had been assigned at the end of the first week as a poster on a modern application of biology. I was interested in the topic of de-extinction, but the group I joined were interested in forensic biology, so I went along with them. We decided to focus on the Golden State Killer case and explore the methods used to solve it: serology, DNA profiling, and genetic genealogy. There were three of us, so we divided the topics amongst ourselves and worked on the intro, outro, sources, and format together. I chose DNA profiling, which became interesting after a while of looking into it. DNA profiling was used in the Golden State Killer case when samples were taken from the crime scenes and analyzed. Those samples did not match a known person in the National DNA Index System (NDIS), but connected the crimes. That week, we spent a few hours together and many hours apart finishing our respective sections and getting the presentation in order. I still made time for myself and my friends, though. On Wednesday, I saw the musical adaptation of *Beauty and the Beast*. It was great! I have been in a few musicals and plays, so I really enjoy being able to see professional productions. The next day, I stayed up late doing NAQT (Scholastic/Scholar/Quiz Bowl) academic trivia questions with my friends. Then, on the last night, we just talked. The day of the poster presentation was the last day of class. All of the courses in the Bioscience Learning Center (Neuroscience, Biology and its Modern Applications, Biotechnology, and Infectious Diseases) had posters as their final, so we got to look around at others' when we were not presenting. My group presented in the afternoon but got delayed by some flooding. We ended up doing our presentation five times, which was about 75 of the 90 minutes we were allotted. It was hard, but I think we did well. The first time we presented, our professor was there, and it was difficult to tell what he was thinking. The second time, our TA

was in the audience and she seemed to like it. I was proud of the work I put in, and that was enough for me.

Living at UChicago worked perfectly for me. The campus is gorgeous, and the residence hall we were staying in has a unique industrial feel. Every day, I would walk to class and pass through quadrangles and courtyards and gardens. I didn't spend much time in my dorm, but I had lots of organized storage space and a great view of the skyline from my desk. Instead of being in there, I was usually studying, hanging out, or talking to my family in the house lounge, of which there was one every three floors. If I wanted company, my friends were just down the hall, and if I needed anything, the RAs were a few doors down. I really took advantage of the opportunity and made it a habit to spend as much time with people as I could. In the dorms, we also did our own laundry and were responsible for ourselves. I enjoyed the independence. To be honest, I already am a pretty independent person when I am with my family, but being without them removed my safety net and also the (welcome) obligation of taking care of them. I was able to establish a great routine, both daily and weekly. The food in the dining hall was also usually very good, and if it wasn't, they had a salad, sandwich, and yogurt bar. I talked to some people who would Doordash for every meal, and I wondered if they knew how much the program cost. As someone who doesn't have the liberty of spending $2000 on food delivery during the program (a true story told during orientation), having unlimited (except for outside of mealtimes) food helped me a lot.

One of the parts of living on campus that people complained about was the amount of walking they had to do. I walked at least four miles a day just commuting to my class (it was the furthest one from Woodlawn), but I really enjoyed it. The weather was gorgeous most of the time (another thing people complained about), and so was the campus. I often walked to class with my friend Aashna and occasionally with my other friend Ben. We were also within walking distance of a few grocery stores and some restaurants and small shops. My favorite place we walked to was Powell Books Chicago. It is a used bookstore with many non-fiction books and a few novels. I only got one book there (*Native Son* by Richard Wright), but spent hours looking at the collection and would've spent hundreds of dollars there if given the chance. Other places I liked were the Regenstein and Mansueto libraries. Regenstein has a lot of books and Mansueto is more of a study space with a beautiful domed glass ceiling. Many people used rentable electric bikes and scooters to get around, but I didn't see the point. It was a few dollars each trip, and that added up over three weeks.

The program-run activities were very exciting. I went to the zoo, the beach, the book fair, the farmer's market, and a musical. Outside of that, the RAs from our individual houses (three floors of the residence hall) organized things almost every night. Twice a week, they hosted study breaks in their apartments. They had boba, brownies, Italian sodas, hot pot, cake, and pancakes. I also participated in a Kahoot night, movie night (featuring *Glass Onion: A Knives Out Mystery*), painting, and more. It was a great way to meet people, and often it ended up that only me and my

friends were there. One of the best things we got to do was House Games. It was a competition between the different houses of students. I wanted to be an active part in us winning, so I did a lot. There was trivia (we got third), a spelling bee (we won by quite a bit), minigames (it was just between us and another house at that point), and a mini-Scav. The Scav is an annual four-day scavenger hunt at UChicago, and we did a two-day one with simpler prompts. Some of my favorites were to record the balcony scene from *Romeo and Juliet*, do the macarena for the 30 minutes that RAs did curfew, and record the voice parts of the song "We Don't Talk About Bruno" from *Encanto*. My house got second, but it was close. That really brought the house together.

Something I didn't expect out of the program was the impact it had on my running. I've been running for exactly a year now, but I've always been by myself. On the first night at UChicago, the RAs informed us that we were not allowed to use the athletic center for liability reasons except for two hours every Wednesday. I had been planning to run a lot over the course of the program, so I was disappointed. However, that disappointment faded when I talked to people from my house and got some running partners. I wasn't really comfortable with running alone in the city, and it was really nice to have a community there. Running with other people was a revelation for me. It's so great to have a conversation with someone during a run. It makes the time fly by. I also ran with people who were faster than me, which was difficult but rewarding.

The actual course I took was good. I recommend it, but there are other, more specific biology courses that may be better, especially if one has taken AP Biology. The most difficult part was the in-class time. The lectures were very fast-paced to the point that my hand would ache after every class from taking notes. The labs also required a lot of focus. However, especially towards the end of the program, we would often get out of class early, even to the point that Dr. Smith pulled up a lecture on developmental biology from one of his undergraduate classes to show us. We had lectures every day from 9:00–11:30 and labs from 1:00–3:00. I liked all of the lectures, even the ones I already knew a lot about, but it all felt a little pointless. Obviously, I enjoy biology and was paying attention to learn about the subject, but there was no incentive to do so. We never had a test. The only thing that tested our knowledge was worksheets or Kahoot-type quizzes, but those could easily be circumvented using Google or an AI (which I saw people doing). The course also had very little homework compared to others. Some of my friends were in classes like Physics, Psychology, and Pathways in World Politics and had hours of homework every night, but I usually had about two (most of which could be completed in class). I had to fill out my lab notebook, do background reading, and go over my notes. Sometimes we had three lab notebooks to write, and that took a while, but not as much as others. The time that I had the most homework was the last week when we finished our final project. Previously, we had only spent a couple of hours total on it, but that week I spent upwards of four hours per day on the project (both on my own and with my group).

The labs were one of my favorite parts of the class. In my Advanced Biology class at Carterville, we never really did any proper labs. The only thing we did was occasionally look at things under the microscope. At UChicago, the labs were great. We did so many different activities and the progression was planned so that we would build our skills over time. For example, our first lab was on micropipetting and then we used that skill for every lab after. My favorite lab was when we did CRISPR over three days. It was just so interesting. I had a lab partner who was very kind. We were often one of the last groups to finish, but we were very thorough and never made mistakes. Learning about lab safety was also useful.

My professor was cool. He seemed really interested in specific parts of biology that I could see in how he taught. He focused a lot on microbes and DNA replication, and though that wasn't advertised, I enjoyed it. Dr. Smith seemed very tired, but I think he was sick for the duration of the program. I also liked our TA. She led the labs and was always very excited about them. She was helpful and gave good advice. I got to talk to her for a little bit on the last day after she taught a lecture, and she was very honest about her career path. She double majored in biology and business, and is pursuing business instead.

Our final project was the hardest assignment I had. I wasn't very passionate about the topic my group chose, but I told myself that not everything needed to be perfect. It was somewhat difficult to work with my group. I usually enjoy working with other people, but it was hard because we had all been educated differently. One of the things we had trouble with was writing. For example, one of my partners agreed that the introduction should be written last, but the other thought that it went first. However, we were able to come together and create something that I think was pretty good, especially as we only knew each other for about two weeks.

The Bioscience Learning Center classes were invited to seminars each week with pizza. Each seminar would be led by different biology professors from around campus. The first one I saw was by Joon Seo Park on cancer immunotherapy and the gut microbiome. He talked about how microbes from a healthy person's gut could be introduced to a cancer patient as a treatment. It was very interesting. Before UChicago, I wasn't attached to cancer biology, but I've learned a little about it that makes me want to know more. The second seminar I attended was by Kewdi Tsegai and went over hominin locomotion development. It especially focused on how humans became bipedal. She said that different types of locomotion could be seen in bone tissue, similar to how wear on teeth can indicate eating habits. I've always liked paleoanthropology. She even mentioned the Piltdown Man (a fake early human skull found in England that was used to deny the out of Africa theory)! These seminars were a great opportunity to learn about different fields of biology and consider what I might pursue in the future.

I love biology. Life sciences are my favorite because they answer so many questions I've always asked. I would love to continue to study biology in the future and maybe apply what I know to

research, medicine, or something more niche like forestry. However, I've always been torn between science and English. Being at UChicago gave me the chance to see what it was like to only focus on one of those for three weeks. I don't know if I could give up humanities, but that's something I have time to decide (I'm only a rising sophomore, after all). The University of Chicago actually has a very interesting Core curriculum that places focus on non-major requirements and electives that include double-major and minor opportunities. I'd like to go to a school like that which would allow me some flexibility.

The best part of being at the University of Chicago was the friends I made. I spent so much time getting to know them and doing things with them that I learned things about myself as well. I've always had a fear of being alone, but I knew that my friends would support me. I'm still in contact with most of them. I learned a lot about the world from the people I met. I had friends from all over the place, including international students. We did come to some cultural confusions but were able to teach each other. I will never forget the people I met at UChicago. Everyone was so nice, even those I didn't know very well. One of the things I noticed was that people were excited about the subjects they were studying. They wanted to tell people about what they liked and were happy to share. At home, I know a lot of people who are smart but not passionate and kind. The only thing they care about is that they are good at something and make others feel lesser for not knowing instead of teaching them.

I was so happy at UChicago. Even when I was anxious on the first day, the overwhelming feeling was excitement to be there. I loved the people, the campus, the course, and the living situation. When I came home, I realized that during the program I was *less* anxious because it was a space I was immediately comfortable in. I also realized that the things that worked for me at UChicago would work for me here. I can no longer settle for things that hinder me. I can work hard and things will be better than they are. One question I asked myself was, "Do you kind of want it or really want it?" and UChicago helped to put things in perspective.

Thank you, Garwin Family Foundation. Thank you for believing in me and allowing me to do one of the best things I've ever done. Without you, I would never have known about programs like this, much less have been able to pay for them. I want to thank my family for supporting me through the applications and then the panic of getting ready to leave. Thanks to my friend who encouraged me to apply. Thanks to all of the friends I made at UChicago—Ben, Charlotte, Sam, Aashna, Harry, Eva, Doris, Asa, Lulu, Emma, Kerry, Claudia, Phoebe, Maureen, Eliza, and many others (sorry if you somehow find this and I forgot you!). Thanks to my RAs—you guys were great and supported us fully. I am so excited about learning. I always have been, but this experience has invigorated me. I will never forget my time at UChicago.