

Final Reflection on My 2018 Summer Enrichment Experience at Brown University's Pre-College Programs

Maya Benyas

This summer, I attended a two-week STEM course as part of Brown University's Pre-College Programs. My course, "Mammalian Brain and Behavior," focused on foundational concepts in neuroscience and introduced students to several disorders affecting the brain and spinal cord.

Class Time

On weekdays, my class ran from 8:30 a.m. to 11:15 a.m., during which we would attend a lecture covering a certain aspect of the nervous system. On Tuesdays and Thursdays, we had additional class sessions from 12:15 p.m. to 3:00 p.m. to test concepts, such as emotion and attention, during interactive labs or to work on research projects, given our assigned topics. My instructor, Rannie Xu, a doctoral student in the Department of Cognitive, Linguistic, and Psychological Sciences at Brown University, was always available to answer any questions. In addition, there were two teaching assistants who gave interesting lectures and helped with practically everything.

During the first week, we were introduced to the basic divisions of the nervous system, the anatomy and function of neurons and glial cells, and the functions of the four lobes of the brain—the frontal, parietal, occipital, and temporal lobes. Each day, we concentrated on a different lobe and its role. We also spent time studying how these lobes interact to interpret sensory information and transmit messages throughout the body. Different sections of the brain play major roles in specific functions; however, I learned that all areas of the brain work together in multiple ways to regulate the body. When studying the lobes of the brain, we also learned about the major sections of each lobe. For example, the motor cortex, dealing with motion, and Broca's area, handling speech production, are specific sections of the frontal lobe. When studying Broca's area, we considered disorders, called aphasias, which cause problems with speech or reading/writing. While learning about the occipital lobe, which plays a large role in vision, we studied the structure of the eye and how the eyes work in relation to the brain. During my course, we also examined the limbic system, made up of several parts located underneath the cerebrum (i.e., the outer layer of the brain), and its important structures—the hippocampus and amygdala.

On Friday of the first week, we dissected a sheep brain! Personally, I love dissections because they give you a chance to apply what you learned in lectures and see the concepts in a hands-on model. During the dissection, we studied and noted certain parts of the brain, because a sheep brain is very similar to a human brain.

Our final project consisted of creating a poster and giving an oral presentation about a disorder that affects the nervous system. I chose to research multiple sclerosis, an autoimmune disease that causes damage to neurons. We were given time outside of class

to create these presentations. I truly enjoyed this aspect of the program because I learned about 18 different diseases/disorders, as each student created and presented on his or her chosen topic of research at the end of the course.

Outside of Class

Aside from academics, Brown kept us busy with different activities. In fact, these social activities were real highlights of my stay. On the first Tuesday, Brown planned a small carnival, during which I met several new friends, enjoyed cotton candy, and raced in the bounce houses. Some of the other social events included watching a hypnotist show, attending a minor league baseball game and a professional soccer game, and seeing the movie "Jurassic World." We even put on a talent show, and it was so much fun to see some of the people I met throughout the program perform their talents on stage!

On the weekend, we took a trip to the beach, which was a perfect, as it was so hot! Not only was the cool water a relief from the blistering heat, but it was also a fun way to spend time with my friends and meet new people. After going to the beach, we shopped around the town nearby, which had all kinds of stores. During that same weekend, the student advisors hosted workshops, and we were able to choose which to attend. I really enjoyed the workshop I chose: Paint Your Stress Away. Even though I do not paint regularly, I enjoyed the opportunity to paint just for fun. The result was a long mural of random paintings.

On the last Tuesday of the program, we took a trip to the Boston Museum of Science. This was one of the most exciting parts of the program, because we were able to explore the exhibits for two hours. My favorite exhibits were the dinosaurs, illusions, and crocodiles. We also saw a short, 4-D film called "Dream Big," focusing on young adults who made a difference in the world through science and engineering.

On the last Wednesday, we took our last off-campus trip. We spent most of the day at Mystic Aquarium, where we watched a 4-D film about sharks. We also had the chance to explore the small town of Mystic, Connecticut.

When I wasn't busy with evening activities or academics, I would play card games with some friends in the dorm. Other times, I liked to walk on the main street, Thayer Street, which bordered campus. This area is where all the shops and restaurants are located, including a bubble tea shop and a Starbucks—which were perfect for when eating dining-hall food got old.

My student advisor, Joanna, monitored the girls in my residential hallway and liked to do special things for her residents. One evening during the last week, she took us to Insomnia Cookies, which was just across the street from our dorm. Although it was beyond the student-walking boundaries, it was quite fun to do something as a hall, and, with those delicious cookies, it was even better!

Final Thoughts

Brown's Pre-College Programs provided me with a great experience that I will never forget. Not only did this program teach me more academically, but it also gave me the chance to make new connections. My instructor, the two teaching assistants, my student advisor, and my friends made the experience at Brown an unforgettable one. In addition, it was important preparation for residential life in college. Moreover, I learned to work well both in a group and individually, to ask questions, and to meet new people.

Before attending the program, I had an interest in neuroscience. Now, that interest has grown immensely, and I have learned that my passion for science is so important that I hope to pursue it in the future.

Finally, I would like to thank the Garwin Family Foundation for furthering my interest in neuroscience and for giving me this wonderful opportunity at Brown University.