

*End of Summer Report | FURSCA 2024*

My name is Nomin Bilegdemberel and I'm a junior at Albion College. I'm an international student from Mongolia. I'm in my last semester of the Dual Degree Engineering Program, so for my summer research project, it was crucial for me to conduct research within that area. My project, integrating sustainability and electrical engineering, focused on utilizing and enhancing natural light in a cost-effective way in campus environments. I chose my electronics lab in the science complex to jumpstart my research.

Over the eight weeks of my research, I was able to build an LED lighting system for task lighting, for students to be able to successfully illuminate their lab desks without needing to turn on the overhead light at all times. For this, I used Arduino UNO and was able to integrate a code that would turn on and off depending on how far the student was using the lights and how long it had been since the last time it was used. This was important because we waste so much electricity and energy just by leaving the lights on for extended periods of time. While all this sounds great, I had many complications to reach the end. I had to research a lot about sustainable lighting and how to effectively calculate the most efficient way to balance natural lighting and artificial light. On top of that, I learned to navigate AutoCAD, a platform for engineers and architects who work on electrical layouts. I have reached out to alumni and architects/engineers who graduated from Albion to help me learn more about AutoCAD since it was a brand-new platform I had never used before.

Thanks to FURSCA, I was able to explore this amazing, booming physics field and able to experiment with engineering, a rare opportunity for students in the DDEP. I am extremely grateful for this opportunity, as I learned how I would progress in the real engineering world. I'm excited to share my experience with my peers in the upcoming Elkin Isaac, and even more ecstatic to continue my studies in the engineering field. This summer's research reignited my adoration for physics and science, so for that, I'm grateful.

Thank you so much to my advisor Dr. Cho for believing in me and supporting me through my research and throughout my college experience. My gratitude extends to Elizabeth Palmer and Renee Kreger as well for nurturing such an amazing FURSCA community, I got to know amazing individuals whose curiosity extends to various fields. I would also like to thank my friends Daniel Jeremiah and Izzy Endsley for encouraging me throughout the summer. To Bruce A. '53 and Peggy Kresge '53, thank you so much for supporting students in the science field.

Here's my [presentation](#) on my summer research!