

While CampBioE did not offer our traditional in-person camp in 2020, we did find opportunities to continue what we do best – engaging Pittsburgh youth in the wonders of bioengineering, science, and medicine. The pandemic reached the U.S. just as we were starting to get our summer plans in order: interns were hired, dates were set, registration was underway, and we were excited to start a second season out of our home in Homewood’s Community Engagement Center. Then, energy and resources rightfully turned towards addressing the inadequacies of certain school districts to transition to online learning. When it became clear that we would not have the budget to even go virtual, we soon discovered that two other programs out of the Swanson School of Engineering were facing similar challenges: Investing Now (directed by Dr. Alaine Allen) and the Mascaro Center for Sustainable Innovation (MCSI) summer internship program (directed by Dr. David Sanchez). By joining forces, these three programs created a free 4-week virtual camp program that engaged 72 Pittsburgh-area middle and high school students from districts that offered little to no instruction for the five months leading up to the camps.

To ensure that math skills were not being lost, the programs recruited math teachers to provide 90 minutes of instruction daily. This was followed by 90 minutes of STEM activities each day using a curriculum established by our 2020 CampBioE undergraduate interns. These interns realized that the impact of COVID-19 was on the hearts

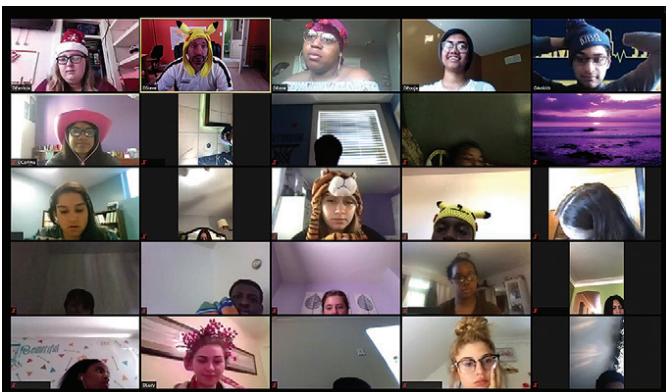
and minds of everyone and that it was incredibly important to provide students with knowledge that would help them discern fact from fiction. However, at the same time, our interns were socially aware enough to recognize that many campers were likely already burning out from COVID-19 overload. For those who had been already directly impacted, further discussion about COVID-19 could be potentially triggering. Thus, **they created a curriculum that taught lessons about the biology of viruses and vaccine development by creatively masquerading the pandemic as a zombie apocalypse.** This enabled the content to be delivered in a more fun and palatable way. Campers worked in virtual groups that were led by an intern from both CampBioE and the MCSI program. Campers had to work daily to prevent the spread of a zombie-forming virus called Zom-B13 from an isolated, fictional island called Grimmsport. The activities included using machine learning to determine who had the virus; finding reliable sources of information; designing personal protective equipment to prevent transmission; deciphering genetic code to find the virus’ weakness; and ultimately designing a vaccine to target that weakness.

This incredibly timely curriculum, which was being taught for the first time while scientists in the real world were busily conducting similar research on COVID-19, was developed by five-time intern, Patricia Donehue (BioSci ‘20), and five first-time interns from the Department of Bioengineering: Janet Rene Canady (BioE ‘20), Pooja Chawla

(BioE ‘22), Veronica Lucy Kress (BioE ‘21), Garima Patel (BioE ‘22), and Ankith Rao (BioE ‘21).

Campers enjoyed the experience with an overall satisfaction rating of 4.10/5 and an overall counselor rating of 4.74/5. We received a note from one of our campers that captured what an enriching experience this was. It said, “I just want to let you know I applied what we learned about binary code to my project for my school, and my teacher was amazed.” In addition to this partnership with Investing Now and MCSI, CampBioE ran a 1-week camp in partnership with the Crossroads Foundation in Homewood and a 6-week (one half day per week) camp with School2Career in the Hill District with equally positive results. **In all, we were able to connect with nearly 100 campers in 2020!**

We wish to thank our hard-working interns, dedicated partners, and every single one of our amazing campers in what was certainly the most challenging year that most of us, and certainly CampBioE, has experienced. I would also like to acknowledge our sponsors and thank them for their support: the Wilke Family Foundation, Mr. and Mrs. Leonard H. and Ann R. Berenfield, Philips, the Swanson School of Engineering, and the Department of Bioengineering. Although we very much wish to be in person, we are looking forward to taking our newly discovered understanding of running virtual camps into 2021 with a uniquely engaging program.



Counselors and students engaging virtually on “crazy hat day”.



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