

## Personal Statement – Michael Blazanin

My classmates and I were hiking in Sierra de la Culata National Park, Venezuela, when we reached a stunning overlook. Observing the mountain opposite me, I noticed again how the vegetation varied depending on the altitude. Realizing this same diversity extends down to the microbial level, I was excited and amazed again at the complexity of life around me. That same feeling has always drawn me to want to travel the world, explore nature, challenge my intellect, study biology, motivate my research and, of course, shape my career.

I have always been fascinated by science and math. For as long as I can remember (even in preschool,) I would tell people that I was going to be a research scientist. Now that I am on that path, it's even more exciting to tell people I that I'm on my way. The most influential experience of my career so far is my research in the Travisano lab. Initially, I designed experiments to evolve motile bacteria. I soon began to apply my research to bacteria-virus coevolution, which opens a door to using bacterial viruses to replace antibiotics. This is exciting stuff! I could now address questions to drive me forward. How do microbes co-evolve? What are the evolutionary dynamics and structure off a microbial community? How does evolution proceed through time? And, can we predict evolutionary outcomes? Microbes provide an ideal model to study evolution in real time and with applied potential. In Venezuela I saw farmers improve crop production and prevent fungal infection by carefully managing soil microbes. Today, we are faced with complex challenges, including antibiotic-resistant pathogens. Can we use targeted bacterial viruses to treat bacterial disease? This is an amazing concept. Based on this, I was proud to receive a UROP grant this spring in order to continue my work.

As an Eagle Scout and Academic Scholar, I have always enjoyed stretching the boundaries and challenging myself on many levels. My lab work is just one example of that. I am also an avid hiker, biker and board game enthusiast. I know the challenges of having appropriate gear for any weather – especially below zero conditions. I also know the challenges of besting a comparable gamer. Having the fortitude to stick to a solid plan and maintain a healthy protocol has kept me safe on the trails and streets, and also keeps my head in the game. Because this world has its own set of pressing challenges, I also want to stick to a plan to solve some of them. This summer I will be presenting my research results at the Evolution Conference, and within a year, plan to publish the findings. Going forward, I plan to attend graduate school, expanding my mathematic and bioinformatics skills, as well as enabling new investigative avenues of microbial evolution.

Additionally, I have enjoyed teaching and mentoring others in their own academic and personal pursuits. I have been trained to be a tutor and instructor for high schoolers wanting to strengthen their STEM educations and bolster their College admission scores. I am also an advisor to a local High School speech team, knowing that learning to speak well to your peers and colleagues is just as important as gaining academic knowledge. As I pursue post-doctoral fellow and professorship positions in the future, I hope to define research which will address antibiotic resistance and other challenging humanitarian needs. I enjoy providing strong leadership and mentorship, and will continue to assist other lab students in their own pursuits. Most importantly, I hope to inspire others to be amazed at the complexity of life, just as I once did in the middle of the Venezuelan Andes; and then, because of that wonder, help them find ways to improve the world through scientific discovery.