

**Experimental Evolution of Mutation Rates**  
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**Advisor: Paul Sniegowski**

This summer I worked in Dr. Paul Sniegowski's lab studying the evolution of mutation rates. Mutations are the ultimate source of all genetic variation, and therefore are interesting to study in order to understand how populations can adapt and evolve to their environments. My project specifically investigated whether or not there is a correlation between mutation rate and fitness, being measured by the ability of an organism to survive and reproduce. This is an interesting project because it allows us to see whether or not high mutation rates, which are typically associated with cancers and other diseases, have a significant impact on fitness and whether or not a lower mutation rate is favored, in terms of a higher fitness rate.

This summer allowed me to see the options available to me after my undergrad career. I never considered graduate school to be an option. However, the lab members I worked with over the summer all came from different fields, ranging from engineering to music. This allowed me to realize that what I decide to study as an undergrad does not have to limit my options post-graduation. Regardless of whether or not graduate school is for me, research is still an indispensable experience that I encourage all undergrads to get involved with. Research is at the foundation of all new knowledge, so regardless of your career aspirations, it is useful to see the groundwork for the tools and information we all depend on.

This summer was by far the best academic experience I have had at Penn thus far. I never realized how much I have learned in just one year at Penn until I had to utilize this knowledge to understand the research I was doing and analyze the data I was generating. Also, my research project opened up a new world of academia for me. I truly appreciate that my mentor took the time to explain the work I was doing, and to meet with me and discuss topics in evolutionary biology that interested me or I had questions about. Although I still have much more to learn, these conversations equipped me with the knowledge and vocabulary to read research papers and understand ongoing projects.