



West Virginia Wesleyan College's School of Science has a strong tradition of providing exciting undergraduate research experiences. This summer, another group of students benefited from the Summer Undergraduate Research Experiences (SURE) program. SURE is funded by the West Virginia Higher Education Policy Commission. While the projects were wide-ranging, participants found the experiences reinforced their passion for the academic disciplines they are pursuing.

Michael Winters of Martinsburg, Mason Benchoff of Waynesboro, PA, and Lukas Samargo of Buckhannon worked in collaboration with Dr. Melanie Sal, associate professor of biology, to study the distribution of tick populations in the Buckhannon area, as well as examining ticks for DNA pointing to *Borrelia Burgdorferi*, the bacteria responsible for Lyme Disease.

"This was a great learning experience," noted Winters. "I learned valuable field and study techniques and enjoyed collaborating with other students to overcome challenges and gain a better understanding of scientific research. I believe our research will become part of a broader study of tick populations. After graduating from Wesleyan, I plan to attend medical

school. This decision was reinforced by my summer work with Lyme Disease and a better understanding of its impact on public health.”

Sam Hughes of Hurricane spent his summer with Dr. Chris DeRosa, assistant professor of chemistry, attempting novel reactions that result in luminescent chemicals that could have potential for the future such as bio imaging and oxygen sensing. “I gained so much from this research opportunity,” Hughes stated. “This experience allowed me to dive into the next level of organic chemistry and gave me insights into the next level of education and research.”

“I loved how much knowledge I obtained in a short amount of time,” Hughes continued. “What I enjoyed the most was spending time with such an intelligent and caring professor—one that gave me great advice and guidance on future aspirations. I now know I am definitely in the right field of study.” Hughes plans to attend medical school after graduating from Wesleyan.

John Harvey of Cross Lanes studied mathematical methods for transmitting by using linear algebra and other fields of mathematics to construct frames. His faculty advisor was Dr. Jesse Oldroyd, assistant professor of mathematics.

“This research project allowed me to create new theorems and included proofs of the theorems where they were compiled into my first professional mathematical paper,” said Harvey. “I learned to trust what I already knew when my mathematical abilities were put to the test when proving new theorems.”

“I really enjoyed working one-on-one with Dr. Oldroyd and watching what we learned in class being used in application,” remarked Harvey. This summer’s experience was not only a resume booster for graduate school, but it allowed me to play around with unfamiliar mathematical models and discover how to use these models in new math programs.” After graduating from Wesleyan, Harvey plans to pursue a master’s degree in aerospace engineering.

Tim Rono of Eldoret, Kenya, spent his summer studying light aircraft jet engines that will be useful in Mars, through the utilization of solar energy. These engines will allow the aircraft to have less weight than what is normally used. His project coordinator was Dr. Joe Wiest, professor of physics.

“This project opened my understanding about space and how jet engines and solar power functions,” said Rono. “I also had a chance to use the wind tunnel in some of my experiments.”

Rono enjoyed the opportunity to work with Dr. Wiest and other faculty members in the department, Dr. Bert Popson, professor of physics and engineering, and Dr. Tracey DeLaney, assistant professor of physics. “Everyone was willing to teach me how to use the instruments in our various labs,’ Rono added. “I believe my research project will provide more advanced flight mechanisms in space and great energy savings.” Rono plans to pursue a career in aerospace engineering after graduating from Wesleyan.

Wesleyan’s SURE program is in its second year of funding. Dr. Joanna Webb, associate professor of chemistry, was the author of Wesleyan’s successful grant application.