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### **Gardner-Webb Junior Conducts Literature Review to Prepare for Hands-on Research in Lab**

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**UNDERGRADUATE RESEARCH**

# Gardner-Webb Junior Conducts Literature Review to Prepare for Hands-on Research in Lab

BY OFFICE OF UNIVERSITY COMMUNICATIONS ON OCTOBER 22, 2020



## Chloe Loth, '22, Studies Effects of Sunscreen on the Skin's Microbiome

Microbiomes are tiny organisms that live on the skin, keeping it healthy and protected. Chloe Loth, Class of 2022 at Gardner-Webb University, chose to study these microbes for her Undergraduate Research Scholar Project. "Once you get past the idea that you have a bunch of living organisms on your body, you discover how much we need these little guys," Loth asserted. "I mean these creatures help protect our skin from developing nasty harmful infections, alter our T-Cells (immune function cell), and help us adapt to our environment. Their capabilities are astounding for a single cell organism."

She was one of 11 GWU students who received a grant from the Undergraduate Research Program to conduct her study on how the ingredients in sunscreen affect the microbiome on the skin. She worked 40 hours a week for five weeks researching her topic under the guidance GWU faculty member, Dr. Meredith Rowe, assistant professor of biology.



Loth is a biomedical science major with a minor in chemistry and wanted a project that would combine both areas and give her experience in the lab. "I ended up going to my mentor/advisor Dr. Rowe with a broad spectrum of ideas on what to research," Loth informed. "This ranged from hormone levels in the body to brain chemistry. Despite my many ideas, Dr. Rowe knew that I wanted to go to graduate school and become a biomedical researcher. She helped me find a topic from my list that would not only prepare me for grad school but for my future job. We both picked the microbiome, because researchers are just now beginning to understand the importance of the bacteria of the skin, and it would allow me to be in the driver's seat when it came to research."

Loth's first task was to conduct a literature review of her topic. In doing so, she found very little research on the subject. "Which you would think to be strange since we put these chemicals on our bodies all the time," she observed. "Sunscreen research is primarily focused on the UV protection, not the little creatures that help us every day."

After the literature review, Loth's next step was to get in the lab to test what she had learned. However, because of COVID-19 restrictions, she has had to postpone this part of her research until December 2021. When she is able to get in the lab, Loth will grow bacteria to analyze. "I have isolated six compounds that are found in everyday sunscreen," Loth related. "I will grow bacteria/fungi found on the face, isolate the compounds and see how these chemicals react with the growth of these microorganisms."

Although she hasn't been able to do the hands-on portion of her research, Loth is grateful for the opportunity to work with Rowe and learn more about her future career. "Dr. Rowe, first of all, is an amazing mentor," Loth asserted. "She helped guide my ideas and helped me determine my goals. This project allowed me to gain experience in the field I want to enter. Hopefully, this experience shows grad schools that I am dedicated and willing to work hard to open new doors in the scientific world. This project is also a confirmation that I am going on the path that God wants me to."

[Learn more about the Department of Natural Sciences. >](#)

Photos by Robin Jackson / GWU Student Photo Team

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We welcome your suggestions and feedback, contact:

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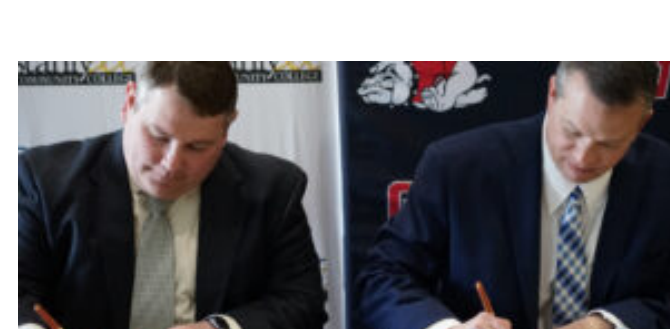
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