

'U' professor, student bring University STEM to rural Michigan high school

by Michal Ruprecht
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The Michigan Daily

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Though Rackham student Taylor Nye graduated from Benzie Central High School in northern Michigan eight years ago, she still returns to Racquel Huddleston’s biology classroom every year.

“We call it the UM-Benzie Connection,” Nye said. “I had a difficult transition from Benzie, which is a very rural school in northern Michigan, to the University of Michigan ... so my goal is to try and facilitate that switch or that transition for other students, so that they can understand that they belong here, that we want them here.”

At the end of Nye’s senior year as a student in the University of Michigan College of Literature, Science and the Arts in 2015, Nye began to travel over 230 miles to Benzonia to mentor Huddleston’s biology classes. Nye said she thought of the idea after she joined associate professor Lyle Simmons’s lab in 2014.

“I was really grateful for the opportunity (to join the lab),” Nye said. “It really kind of switched my perspective of life at the University, and I thought it would be really great to give back to Benzie and both to encourage students that had a lot of potential about their opportunities at the University of Michigan and schools like it.”

During her first visit, Nye presented about the research project she was conducting in Simmons’s lab to Huddleston’s AP students. After her visit, Nye wrote about her efforts in a National Science Foundation predoctoral fellowship application.

After reading her application, Simmons wrote in an email to The Daily he was struck by her efforts and asked Nye and Huddleston if he could help. At the time, Simmons was preparing an NSF grant and decided to include lab supplies and laptops for Huddleston's class. He added that Huddleston's students have a long history of test scores that exceed national averages, so it was important to provide opportunities for these students.

Nye emphasized her and Simmons's work would not be possible without the NSF grant Simmons received, which allowed them to buy six Apple computers for the students and start a bioinformatics program available for the students throughout the school year. Simmons also noted the group is developing a website to teach concepts remotely.

"Bioinformatics is a really interesting field, relatively new in terms of combining biology, statistics, computer science," Nye said. "The wonderful thing about it is that students don't need a wet lab to participate and to start working on those skills."

The Daily reached out to Huddleston and the school multiple times, but did not response.

Nye said one of her goals was to change the students' perspectives on academia and careers in science, technology, engineering and math. She said it can specifically help students find professors like Simmons accessible to them.

"We started going out and lecturing, and the idea was if they saw Lyle as just a guy, human, somebody who's relatable, then maybe we can start to shift the perspective of academia kind of being this other world," Nye said.

Simmons wrote he hopes his bonds with the students break stereotypes about research scientists and accessibility in higher education. One way he does this is by introducing himself as Lyle and asking students to refer to him by his first name. He added this helps students feel comfortable around professors and confident to ask questions and participate in discussions.

"I then work with the students in an interactive way to help them understand the biological concepts that we are covering," Simmons wrote. "I also think that visiting BCHS and teaching all biology sections helps to build a collaboration where the students can feel comfortable enough to work and learn with me."

Simmons and Nye said the project has evolved throughout the partnership. One year, they hosted a three-minute thesis competition with other graduate students from MCDB. The pair said they now box up labs and present on microbiological concepts like CRISPR-Cas9 gene editing and antibiotic resistance. They also teach the students about the importance of their lab's research and answering questions fundamental to microbiology.

Nye visits the students at least two times per year, while Simmons goes at least once. Simmons wrote he handles most of the academic lecturing. He added the group tries to ensure all students feel comfortable and understand the

concepts being taught.

“We do our best to ensure that each student has had an opportunity to learn and explain or ask questions about the concept being taught,” Simmons wrote. “We like to incorporate hands-on activities, such as having the class organize themselves so that they form a membrane to model electron transport. This provides an opportunity to both work together and engage with the material in a more interactive way.”

Simmons and Nye said they’ve noticed students begin to take advantage of opportunities available at the University. This past summer, BCHS student Hailey Fiel and another student from the school were accepted to and participated in the [Aspirnaut Summer Research Internship Program](#), a six-week research program at the Life Sciences Institute for students from underresourced communities.

In an email to The Daily, Fiel wrote Simmons and Nye solidified her intentions to pursue higher education with an interest in science. She added Nye told her class about the research program and was inspired to apply after experiencing two visits from Simmons and Nye.

“I had the time of my life,” Fiel wrote. “I made connections with people that I’ll never forget and had experiences that will stick with me forever. The opportunity to be a part of this program has opened so many doors for me that I didn’t even know existed. I’ve always intended on pursuing a STEM career and this experience just made my love of science even stronger.”

Nye said the program is unique because it covers all expenses and students receive a stipend. She added paid internships like this one are important for students from less affluent school districts or low-income households.

“(This) is really huge for a student from a background like Benzie because in my experience, you need to use summer to work,” Nye said. “You can’t do something like participate in unpaid internships or anything along those lines, which are fantastic opportunities. But if you need to make money during the summer, it’s just not something that’s available.”

LSA junior Zoe Anderson, who is on the pre-med track and hails from a rural city, agreed with Nye. She said programs like these are important for students from rural areas with fewer resources but who are interested in a STEM career.

“I think that’s super important because, for me, coming from a rural area, I had no idea what working in a lab entailed,” Anderson said. “I think being from a rural area is really unique because you have super strong community values, which hopefully you take with you to other parts of your life once you leave a rural area, but it’s great that this program has rural kids in mind.”

Nye mentioned she'd like to expand the program to include more rural schools in northwestern Michigan, and Simmons added he'd like to bring students on campus. Nye added she informs students about the University's [Go Blue Guarantee](#) program so that they're aware of financial support.

"The idea is basically that we just go up there and we try and show the students that science is accessible to them, that there are many opportunities available to them," Nye said.

Nye emphasized the partnership has continued because of Simmons's and Huddleston's help.

"Dr. Simmons and Mrs. Huddleston have both been absolutely fantastic throughout this process," Nye said. "They've driven the majority of everything that has gotten done. I think it's really wonderful that both of them are willing to commit their time."

Nye and Simmons said they hope to continue the program in the future. Nye added she's noticed a lot of growth in the students and is always impressed with their knowledge and dedication to understanding biology.

"Now when we go up there, they know who Lyle is, they know who I am," Nye said. "Despite the fact that I continually keep getting older, which you know, at the beginning, I would come up and talk to people and be like, 'I'm only a few years out. You might remember my sibling here.' But now I feel as old as the hills. But it's still wonderful."