Taylor Harris has had quite an adventure so far at UNI. She originally came to the university seeking a degree in Chemistry Teaching, but her focus slowly shifted. She also loved physics in high school and decided she might want to study it more. She did not change her major at first. Instead, she added Physics Teaching as a second major. Then she eventually stopped pursuing a degree in Chemistry. Now, she is working on a BS in Physics and a teaching degree.

“I started getting more interested in physics and that future possibility of maybe wanting to become a professor. Teaching the teachers to teach. So I decided to change to a BS in Physics,” she says, explaining the path to choosing her current field of study.

When asked why she chose UNI, she says it was mostly because of the education program. However, size also played a factor.

“It’s quite renown, nationally even. And I knew I wanted to become a science teacher . . . The science departments at UNI, they’re really strong. Yeah, they’re not that big, but they’re still big enough where you can form a good community and get to know everybody. I think that’s what really appealed to me as well as pursuing upper-level science education here.”

Taylor describes herself as “a big science nerd all around.” She is interested in many aspects of science outside of her current field. In fact, she took one of her favorite classes while she was still majoring in Chemistry. Organic Chemistry made her realize just how much there is to learn about science.

“When you’re in organic lab and you’re learning distillation techniques and how to synthesize these molecules and all this other stuff, it’s like ‘Wow! I actually did that. I understand these concepts,’” she explains, adding that she had a similar reaction to a class she’s currently taking: Modern Physics. The topics covered, like relativity and quantum mechanics, are quite complex. For Taylor, that’s what makes them so neat to explore.

Student organizations have played a large part in what makes her UNI experience special. In fact, she was one of the students that spearheaded the revitalization of the Physics Club. Looking at how involved students were in the American Chemical Society, she hoped that something similar could be done within the physics department.

“When I was a freshman/sophomore coming into the physics department, there was no organization for physics majors to get together, hang out, socialize, or even have opportunities to grow professionally or even do outreach opportunities such as volunteering at events. Things like that,” she says. “Starting it up has really
helped not just my educational career, but I also know that it has helped a lot of other people's too. Even this just this past semester, I've gotten to know so many physics majors that are here on campus, and that's really nice. Because I only knew like maybe 15 of them, but now I know like 50 of them."

Taylor has stayed involved in her department in other ways as well, including research. She is doing one research credit this semester, but also intends to work on two different projects over the summer. One of her projects involves dichalcogenide layers. Dichalcogenides are a type of dark, magnetic, semiconductors. This is important because semiconductors are essential to electronics because their properties can be controlled. Dichalcogenides are in particular are a special, new area of semiconductor research. They can be used as transistors, emitters, and detectors, and many other things. Taylor’s research involves creating a technique to develop them in layers, and then examining their properties.

Her other project is more related to education. She will be teaching high school students how to code using called Arduino. Arduino is an open-source hardware and software company, whose platform helps users create interactive devices and objects.

“So it’s basically these little kits and they can make a little robot with it and it can do all sorts of things,” she explains. “It’s about how can we use this robotic, mathematical model to teach physics.”

Taylor spends a lot of time with her research and course work, but she does have free time. She stays involved in campus ministry. She also likes to go rock-climbing, and, when the weather is nice enough, relaxing in a hammock.

Taylor has advice for future STEM students, particularly women in STEM. "I know something that I struggled with coming in as a STEM major, especially in the physics department, it's a little bit of a different dynamic because I'm one of very few women in the department. Unfortunately, that's just kind of how it is. It's a male-dominated field. Being the lone wolf, at times, within the department is a little intimidating. Just don't be afraid to go after what you want to go after. A lot of people sometimes catch themselves in a comparison game. They're like 'Oh, I don't know if I could do this.' But really the sky is the limit, so just jump as high as you can. Just don't let anything get in your way. Don't be afraid to set your goals high." She goes on to explain, "I went to a women in physics conference in Lincoln, Nebraska. They host it every year. It was really cool seeing all the women there, presenting in their various fields, but I think the stigma against women in STEM is starting to go away. No matter what your background is, no matter what, don't be afraid to be a leader in your field."