Two weeks before the end of a six-week stint on the Logan campus of Utah State University, Christina Morgan was spotted working out on the elliptical in the Health, Physical Education & Recreation building.

She had already settled into a routine. She looked like any other student taking an exercise break. The fact that she’s a sophomore from the university’s Blanding campus would be missed by most everyone else in the facility that day.

No different the next week in Professor Anne Anderson’s biology laboratory where she and lab partner, Chris Capitan had been conducting fungus research throughout the week. It is not until you catch up with their 19 peers and see them together does the significance of this unique collection of students begin to sink in.

They are Blanding campus undergraduates participating in an intensive summer program in connection with a Science Technology Engineering Mathematics (STEM) exploration mentorship for Native American students.

They are happily tackling subjects as expansive as the world of buttes and bluffs from which they come. The USU Eastern Blanding campus borders the Navajo Nation Indian Reservation and the majority of its 600 students are from this reservation.

What makes them stand out is that, first of all, they already have a handle on STEM subjects, above average to be sure. This is notable because most come from small high schools on the Navajo Reservation where facilities and qualified teachers are stretched to the limit. And while 77 percent of Native Americans earned high school diplomas, only 13 percent (compared to 28 percent of the general population) have at least a bachelor’s degree.

To help these students begin to see careers tied with STEM studies, the Blanding campus created a STEM pathway. Along this path is the USU Logan campus. USU Eastern Blanding, under Virgil Caldwell, Curtis Frazier and Guy Denton, helped secure funding through a NASNTI grant initiative (Native American-Serving Nontribal Institutions), complete with a departmental certificate and a group of core courses for students who want to go onto STEM in their degrees and future careers.

Much credit, as well, goes to Alan Savitzsky and his graduate students on the Logan campus who set up the departmental mentorship for the students, Frazier said. “It was a huge undertaking.”

Jump four months ahead and you find the program continues to have impact. At the time of this writing, Morgan and Capitan were about to leave for Washington, D.C. to present academic posters at the annual conference of SACNAS (Society for Advancement of Chicanos/Hispanics and Native Americans in Science).

Their work is poster worthy because it is actual research. No one had ever done some of the experiments they conducted, Anderson said.
“I try to give them research opportunities where there is a fair chance of something working out,” she said. “They were the first people to actually work in that way with the organisms they selected.”

Organisms involving bacteria and fungus, particularly Pseudomonas chlororaphis (Pc06), used as a soil inoculant in fighting fungal plant pathogens to determine how plant roots nurture bacteria on their surface. Their grasp of the subject, let alone spot-on pronunciations of the scientific names, was impressive.

“We've been able to apply what we have learned, and that's helped us a lot,” Morgan said. “Now when I go back and take these classes, I have an edge.”

A preparation edge that translates into a lot more confidence when the time comes to move on to a larger campus. That essentially is the purpose behind the program said Emily Sadler, a Ph.D. candidate in biology who assisted as a mentor. It's designed to give them more exposure to the breadth of STEM research and studies beyond the Blanding campus.

“I think the most satisfying experience for the facilitators involved was to talk to the students one-on-one and to hear them begin to question and wonder about their future,” she said. “To hear the students say that they are more confident and more ready to go to a larger institution, and to hear some want to pursue careers they never considered before, was incredibly satisfying.”

Shaniah Dickson, a sophomore in criminal justice, put it another way: “It shook up my thoughts.” Her work in the lab intrigued and excited her. She wondered if she should change her major or do a double major. “Now I am looking at using the techniques I learned in the lab.”

It is good to try things on, whether it be a lab coat or a campus, when thinking about one’s future. It gives students a starting point and an opportunity to replace the dread of the unknown with the assurance of experience.

“I got a more diverse experience being here and learning and working in the STEM fields than I ever would have, considering I am an English major,” wrote a student in her critique of the program. “It's nice to learn new things and be able to understand what I am doing especially when the sciences and math subjects are my weakest point. So with that being said, I am more confident than before I came.”