Teaching with more than books

Public health essentials course offers hands-on education.

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Teaching the skills necessary to get clean water and shelter with limited resources and no modern conveniences takes a place out away from things, where you feel isolated and dependent on the land.

East Tennessee State University’s Valleybrook Campus, with its 144 acres of pasture land, hills and woods, provides just that kind of environment for the College of Public Health’s course in public health essentials.

“I didn’t even know I could use a saw before this class and now I’m like it’s not a big deal. I thought it was going to be really hard,” said student Kristy Turner, an undergraduate student in public health who took the course this summer.

For this new course, Turner and others designed and erected a three-sided structure common in many develop-
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opposing nations using clay bricks they made, wattle and daub and corrugated metal, the three most common building materials in the world.

"Everyone made bricks," Turner said. "The bricks took the longest amount of time. But we each took turns stacking them up and cementing them and learning how to mix the cement, how to even get the right ratio with the bricks.

We had to add some sand to it and lay until we got the right consistency so they wouldn't crack or anything."

Mike Wykoff, public health dean, said the idea for the essentials course came from students who returned from field placements that everyone in public health is required to do. Some students do these placements abroad. Public health officials are often deployed in remote settings in developing nations or in disaster areas.

Wykoff said by listening to students returning from the international field placements, it became clear that the college was teaching why it was important to have clean water and adequate shelter but not how to provide those things.

"It's not just enough to teach people what they need to know," Wykoff said. "They have to be able to do it and apply it. And obviously in our line of work you often find yourself in places with less than the full range of resources."

So how do you translate the knowledge of the importance of clean water and the lack of it to make a difference in people's lives?

One way is to create a water filter. A biosand filter is a good option for this. It is relatively simple to make and actually filters water with a combination of rock and sand.

For this filter, a tube runs through a container that holds the rock and sand. The pressure of the water as it filters down pushes it out the tube and the result is clean drinking water. The sand and rocks filter the water.

Metal molds for these filters can be created so the filters can be manufactured. This enhances the local economy. Students have actually made these biosand water filters at Valleybrook.

Wykoff realized after some of these international field placements that ETSU had not taught students how to make these biosand water filters.

"Once you've learned a biosand water filter, you can go to a city water supply and it makes sense," Wykoff said. "You understand, though it's done on a much bigger scale."

Students in the course also learn about collecting water, pumping water, building a safe structure, building a fuel-efficient and safe stove, growing an appropriate garden with nutritional value, how to make rope using a hand-operated machine, canning fruits in the traditional Appalachian way, making fuel pellets out of saw dust and paper and making head lice treatments and mosquito repellents.

All these skills are useful in a low-resource area, Wykoff said. "These are things that Peace Corps volunteers or mission workers would need where they go."

"These were skills that our ancestors had 100 years ago uniformly," Wykoff said.

Mike Stoots, who taught the course, said a course like this one is invaluable to students because it bridges the gap between the classroom and the workplace by allowing students to apply practical knowledge.

"Students become involved," Stoots said. "They really want to get their hands on this stuff. And there was a certain level of confidence that comes from that."

Jenny Downes, also an undergraduate in public health, took the course this summer.

"We learned how to use the resources that were available to us," she said. "Dr. Stoots taught us how to test the soil for clay content and find the optimal mixture so that we could go into any environment and figure out what was best for us. We talked about resources that would be available in different environments and how we could use them, which was great, it will prepare us for global health internships."

Wykoff said Valleybrook has opportunities for this course beyond what was offered this summer. For instance, Wykoff would like to eventually create a third-world village on some of the 194 acres available at Valleybrook.

"This isn't just for show and tell, though," Wykoff said of the proposed village. "This is to really show the students the context and the level of challenges."

The three-sided structure the class built was set near where this village would likely be located.

Wykoff said safety could be better taught with an actual third-world village that displays various safety hazards.

Brittany Bolton was also in the class and said beyond learning how to make things and use practical knowledge, she learned more about how the world works.

"I definitely understand things better," she said. "And it gives me a new aspect to look at. You know, living in East Tennessee, we aren't the richest part of the world by any means but we have running water that's clean and refrigeration, things like that... I think if everyone could do this it would be a good eye-opening experience, as well as a teaching aid."