If students can't come to chemistry, take chemistry to the students

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Amy Petros, a University of North Texas chemistry professor, always encourages her students to be creative, work together and utilize the resources around them. In a time of social distancing and sheltering in

place, those lessons have become even more important.

"Without knowing it, I was actually in a pretty good place when it came to moving to online lessons. I teach a class where students study my lectures at home and work together in class to apply the lessons," Petros said. "So, my students were already used to online lectures. But, my class also has a laboratory portion and the question became how to get my students their lab time."

Petros and her teaching assistants had approximately one week to come up with a solution. Initially, the answer was to provide online lab lessons, but she didn't want her 800 students to just sit and watch others work.

"Lab time is about interaction. It is about a student conducting an experiment and not just watching someone else do it," she said. "So, we designed videos whereby the TAs provided the hands to move through the experiment while the student watching had to record measurements and solve problems."

But, Petros and her TAs didn't stop there. They decided that if the students couldn't come to the lab they would take the lab to the students.

"I think many of my students were surprised when I asked them to conduct experiments in their kitchens," she said. "But really, the kitchen can be a great place for chemistry."

One of the experiments Petros assigned students involved testing the pH (acid or base) of common liquids found in kitchens. Students could test juice, soda, water and cleaners by exposing them to boiled red cabbage. Red cabbage changes colors (yellow or pink for acid, green or blue for base) in response to pH levels.

"One of my students was very excited by the idea, but couldn't find red

cabbage. So, she decided to do a little research on her own and found she could substitute butterfly pea flower tea, which she had in her kitchen, for red cabbage and get the same result," Petros said. "I am pretty proud of her effort. She read peer-reviewed journals and put together a proof-of principle experiment to show me it would work."

As the summer term approaches, Petros and her TAs are putting together experiment kits that students can use in conjunction with the videos while sheltering in place. The experiment kits will include all the components necessary to complete 2-3 hands-on experiments at no additional cost to the students.

"I know this is a really hard time for my students," Petros said. "I am happy we were able to create a fun and engaging virtual experience for them to get their necessary lab instruction and complete their class."

Provided by University of North Texas

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