

Regional

Professor teaches science teachers to teach

Some of the most satisfied people in academia are those who combine the joy of teaching with the excitement of cutting-edge research. One example of that kind of academic is Kelly Barry, an associate professor in the department of biological sciences at Southern Illinois University Edwardsville. And in this competitive world where American students are falling behind their global counterparts in areas of math and science, few academics have a more important task than Barry. She teaches teachers how to teach science.

A native of Danville, Ill., Barry received her bachelor's degree in biochemistry from Manchester College in Indiana, her master's degree in life sciences from Indiana State University and her doctorate in plant molecular physiology from the University of Hawaii. She has had the opportunity to teach students in two quite different geographic regions of the United States: Hawaii and the Midwest. When asked how different are they, she had a very comprehensive answer.

"Kids are kids no matter where you go," she said. "They come into the classroom generally pretty excited and happy to be there, for the most part. They have their days. The kids in Hawaii, at least in the school I was at, were less prepared for academics and didn't necessarily value it as much. But we were making great strides to change that in the school." Early on Barry showed a great inclination toward the subject of science education, something she took on not only because of professional, but also for personal reasons.

"When I was working at the university I loved working in the labs, but I also missed being around people," she said. "When you're working in the labs it's a lot of private time and working in small groups. And it's great. It's a lot of fun. But I really did miss the interaction with the communities, so I decided to start pursuing secondary education certification." As a researcher she specializes in a topic few people hear about until there is a crisis: plant viruses.

"When I came to SIUE I was very fortunate to stumble into a position basically where they were looking for someone with a background in molecular biology and who also had teaching experience," she said. "I am fortunate to be able to put both of my professions together in this one job." A large part of her job is training teachers, while continuing her own



Photo by Luci Kohn

Dr. Kelly Barry, center, with a group of students learning to interpret and create phylogenetic trees.

research.

"I have a tissue culture aspect of my research lab, so I get to keep with the plant sciences," Barry explained. "I am expanding my interests into plant conservation through the study of plant tissue cultures. And I also have graduate students who work in education. It's just great fun to be able to do both of these things." Part of her research experience has to do with plant viruses that affect different species of plants, including orchids.

"When these viruses affect these plants, they are usually transferred from tools the workers use," she

said. "They cause spots all over the plants and the flowers, and nobody is going to buy flowers that are infected with that." Barry and other scientists are using molecular biology techniques to try and make the plants resistant to these viruses, but that is not the only species of plant she works on.

"We also work with tomato and banana viruses," she said. "These viruses infect the plants and they are devastating. So if you take a piece of the plant with the virus in it and start a new plant with it, they are going to be infected and it can just wipe out an industry very quickly." Barry added that there should not

Aldemaro Romero Jr. College Talk

be any fear of these viruses affecting human health directly since they are very specific to those plant species.

"Viruses are very specific and would never cross those kind of boundaries," she said. Yet they can have a profound economic impact. She remembers how a papaya virus in Hawaii almost wiped out the local crops and the price of papayas skyrocketed. Viruses can, of course, also affect crops closer to home, such as in the cornfields of Illinois.

In addition to her research on plant viruses, Barry teaches teachers how to teach biology. While she laments the fact that in recent years science teachers have felt compelled to "teach to the test," a new generation of science standards is coming along, she said, one that emphasizes science as a way of thinking.

"Students are growing in a different age," she said. "It is not about teaching facts but about teaching how to think, how to apply the information." One oftentimes controversial issue that science teachers face is the teaching of evolution.

"I tell the teachers that they are not there to change anyone's faith, but to teach the evidence. Most students are willing to listen," she said.

Barry has also worked with The Nature Conservancy in a program to teach high school students about conservation.

"Some students are very involved, but most don't know much about it," she said. One of the activities she is involved in is as coordinator of the science Olympiads, where teams from different schools compete in terms of both knowledge and hands-on activities.

"The most rewarding thing is just being around the kids," she said, "to see how they struggle with problems and sometimes solve them."

Aldemaro Romero Jr. is the Dean of the College of Arts and Sciences at Southern Illinois University Edwardsville. His show, "Segue," can be heard every Sunday morning at 9 a.m. on WSIE, 88.7 FM. He can be reached at College_Arts_Sciences@siue.edu.