The Apprentices Become the Masters
Cal Poly biology students are among the few experts in the country on a new method of protein analysis that can help predict the results of climate change. Last December they shared their expertise by teaching the process to professors and doctoral students from other universities.

The students planned and led a National Science Foundation (NSF)-funded workshop in environmental proteomics, a method of analyzing how organisms respond to different environmental stresses.

"As a student," said Michael Garland, a graduate student in biological sciences, "it was a rewarding feeling to be regarded as an expert by our professor and other attendees, who were new to the analysis technique.

"Only one of NSF's grand challenges is how to share and spread the knowledge gained by professionals. Last year's workshop was great because students were able to present the technique to a diverse audience of experts and help develop new ideas.

"Students at Northeastern University, the University of Hawaii, and CSU Northridge are studying climate change. The techniques learned at Cal Poly will help them better understand what conditions are necessary for coral to survive.

"In the first step of the analysis, the students learned to use a tandem mass spectrometer to measure the molecular mass of protein fragments called peptides. Only three environmental proteomics labs in the country currently have this spectrometer. Using the instrument as an undergrad gives Cal Poly students an unparalleled learning experience.

"In the second step of the analysis, we identified the protein using a tandem mass spectrometer, which measures the molecular mass of unique protein identifiers called peptides. Only three environmental proteomics labs in the country currently have this spectrometer. Using the instrument as an undergrad gives Cal Poly students an unparalleled learning experience.

"In the future, Cal Poly's Environmental Proteomics Lab will run the second step of the analysis for workshop attendees who don't have a tandem mass spectrometer on their home campuses.

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