



Taking a CHANCE

By Vince D'Imperio '12



Who would have thought that one idea in the mind of a biology professor could turn into a whole new way of teaching? Dr. Jacqueline McLaughlin, assistant professor of biology at Penn State Lehigh Valley, has spent her lifetime transforming the textbook method of teaching biology into dynamic pedagogical methods of learning that immerse students, both in physical classrooms or field classrooms around the world, in biological concepts and real-world issues through research experiences. By blending research with teaching, McLaughlin has opened the eyes of students to biodiversity, the flagship of the entire program.

To those not familiar with McLaughlin and her work, she is the founder of CHANCE (Connecting Humans and Nature through Conservation Experiences). In this program, under the umbrella of conservation, high school teachers, high school students, and Penn State undergraduates experience and connect with the realities of biodiversity that define the biosphere, our living planet.

"The most important element of my work is being able to teach about the biodiversity of our planet. And with this, I can convey the message that we are losing her," McLaughlin said.

So, how exactly are the critical concepts of biodiversity put on a biology undergraduate student's level through CHANCE? Some of the scientific concepts, like the stratification of Pennsylvania's northeastern deciduous forest and global climate change, can be a lot for a student to wrap his or her head around. This is where technology comes into play by putting real-life scientific experiences into the hands of students through a set of online modules.

"I've always felt that the walls of my classroom were too confining, and that teaching in the traditional lecture/notes/memorize paradigm was ineffective. So I concentrated on creating visual animations – interactive Web-based 'research modules' that help explain complex concepts," McLaughlin said. "I'm not proposing to get rid of textbooks, but saying that you can embrace research-oriented instruction by using learner-centered multimedia tools. My personal research on student assessment reveals that such tools enhance learning."

These interactive learning modules put students and teachers in the field without ever having to leave the classroom. Dr. McLaughlin teamed up with world-renowned scientists to develop modules ranging across the spectrum of environmental biology and conservation science. Each module has its own

objectives, including interactive on-screen research, comprehensive questions in a progressive notebook, and even videos. The CHANCE research modules are recommended by the Pennsylvania Department of Education (PDE) as a way of helping high school students meet the state standards in environmental science and ecology.

"The modules are purposefully designed to be more engaging and interactive than a textbook by allowing students to learn by using authentic research data," said McLaughlin, though she was hardly ready to stop her teachings there.

CHANCE takes experiential learning to the next level by actually getting students out into the field. The program's most intensive and engaging element is its field course in Costa Rica, offered every summer to expose in-service and pre-service science teachers and Penn State biology undergraduate students to the realities of conservation research.

The yearly trip to the Central American rainforest entails visiting non-government organizations, field work, analyzing conservation issues, and experiencing what researchers are doing to sustain biodiversity. Assignments given before, during, and after the field experience enhance the learning outcomes. Dr. Kathleen Fadigan, assistant professor of science education for Penn State's Abington and Great Valley campuses, accompanies the group to provide expertise in secondary education teaching and learning methodologies, skills, and applications.

Those on board for the 2009 trip visited several venues across Costa Rica including the marine reserve Gandoca-Manzanillo Natural Refuge, where participants teamed with staff from Widecast on nightly patrols to guard and monitor leatherback turtle nests. Other sites included the coral reefs of Panama, the Organization of Tropical Studies in La Selva, where many aspects of the rainforest ecology were studied, and the Caribbean Conservation Corporation (CCC) in Tortuguero.

"The turtling at night gave me an appreciation for field researchers," said Soumya Immella, a student who participated in the trip to Costa Rica. "They are definitely used to the physical aspect of things, but to do this every day – we do not realize how much effort they put in for a great cause."

"The students' experiences with nature are real and effective, not packaged or secondhand, and they promote active learning," said McLaughlin. "Additionally, we would argue that actual field exploration encourages student collaboration, stimulates inquiry-based learning, and promotes environmental consciousness."

In addition to the field experience in Costa Rica and the research modules, Dr. McLaughlin is currently developing two more elements of the CHANCE program. One is a supplemental text/multimedia product that she is presently writing for the undergraduate biology classroom. The other will embrace the study of both environmental and economic world-wide issues to better understand China's ecological challenges.

"The link between China's booming economy and its deteriorating environment makes it the perfect place for both science and economics students to learn what it really means to be a citizen of the world," said McLaughlin.



Dr. McLaughlin (far left) poses with Penn State students and Pennsylvania educators during the most recent field experience trip to Costa Rica.

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Business and biology students will travel to the Jiangsu Province in May 2010 to study air and water pollution, energy use and sources, and biodiversity realities. This area of China has long been the country's most populated, affluent, and educated region. Its industrialized economy has made it a test bed for Chinese efforts to create an environmentally-sustainable development model.

In October, McLaughlin traveled to China to meet colleagues from Nanjing University and Jiangnan University, who are collaborating with her on this portion of the program. For the 2010 trip, she will be joined by Michael Krajsa, instructor of business at Penn State Lehigh Valley, who brings expertise in short term study abroad experiential courses focusing on global social enterprise.

In addition, the program also holds an annual CHANCE Idol contest. High school students from across Pennsylvania write new and environmentally-related lyrics to a song, videotape their performance, and a panel of expert judges, with backgrounds in biology, chooses the best video.

This year's winners were from Pocono Mountain East High School. In September, during an official school assembly, the school was awarded \$2,500 to create a community garden and outdoor theater near the school. The

winners showcased their video to roughly 700 classmates, as well as special guests and dignitaries from the community. In addition, Richard B. Alley, Ph.D., Nobel laureate, and Evan Pugh Professor in the Department of Geosciences, and Earth and Environmental Systems Institute at Penn State, performed live via video teleconference from a research facility in Woodshole, MA. The award was presented to the school by representatives from sanofi pasteur and ATAS International, Inc., who co-sponsored the competition.

No matter what kind of projects or endeavors that Dr. McLaughlin and CHANCE undertake, one can be sure that they will be fueled by her passion to help her students learn biology.

"It's not our place (faculty) to argue or force scientific information onto our students. Instead, we must figure out the best ways to intellectually challenge them, and to allow them to 'experience' firsthand the wonder of scientific inquiry," said McLaughlin. "After years of teaching in and out of the classroom, I've come to believe that experiential learning is, in fact, the quintessential pedagogical method." 🐾

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On May 16, the campus and community gathered in the West Garden one final time to honor the last Penn State Lehigh Valley students to graduate at the campus' former location in Fogelsville. During the Commencement ceremony, 85 bachelor's degrees and two associate degrees were awarded by Dr. Kenneth Thigpen, director of academic affairs, and Chancellor Ann Williams. Dr. Williams also bestowed a special Chancellor's Award on commencement speaker, Helen Thomas.

The packed crowd of graduates, family, friends, students, faculty, staff, and community members listened with rapt attention as Thomas, a legend in American journalism and a pioneer for women in that field, delivered a poignant, and at times humorous, speech. She acknowledged that the graduates sitting before her were entering a world full of challenges and potential hardships, but in turn challenged them to do all they can "to create a better and more compassionate" world.



Visit the Penn State Lehigh Valley YouTube channel to watch Helen Thomas' commencement address, and to see other videos about the campus (www.youtube.com/use/PSULehighValley).