

Getting Students Out of the Classroom and Into the Lab

BY JOHN KIESLICH

Entomology and Nematology faculty are helping students to embrace the creative process of science and research, bringing together education and hands-on research experience in the classroom setting.

The Department of Entomology and Nematology added Undergraduate Research, a section of ENY4905, to its program. The course was first taught in Spring 2012 and was designed to teach students the processes of science and research.

Assistant professor Christine Miller conceptualized the undergraduate research course. She leads a research team and decided to include a classroom full of undergraduates, Miller said.

"I am always interested in doing projects that are beneficial to many different people," Miller said.

The inspiration for the course originated because Miller had thousands of insects that needed to be measured. On her own, or with the help of just small groups of students, the data collection would have taken years to complete, Miller said.

Postdoctoral researcher Jennifer Hamel was also very involved in the conceptualization of the class. Much of the design and materials for the course came from Hamel, Miller said.

"Overall, the goals of the course were to benefit the research group by collecting a large body of data accurately and completely and to benefit the students by developing their idea of what science is and how it works," Hamel said. "The third goal of the course was to promote our development as educators and try out this new model."

By being involved in the collection of data, students had the opportunity to develop a work ethic essential to research, Miller said.

"Data collection is partly about learning to be consistent, to follow instructions carefully, to be accurate and to stay focused on the work," Miller said. "They learn that a high level of consistency and accuracy is crucial to the development of research."

An important aspect of the class was that it was a nurturing environment, which made the idea of research less intimidating for undergraduates, Miller said. This is a result of having instructors, who were also scientists, at every level in their career. Other than Miller and Hamel, the teaching team includes an experienced undergraduate, a recent graduate and a graduate student.

"I remember the first time I went into someone's office when I was an undergrad to ask about a research position; I could barely talk I was so nervous," Miller said. "I was terrified and really intimidated."

However, data collection and research were only one side of the course, Miller said. Another side of the class was structured similar to a humanities course, with students leading the class in discussions and explaining their thoughts and ideas on the topics.

"It wasn't about us lecturing and telling them what to think, we wanted to know what they thought," Miller said. "I want to know what's going on in students' heads."



Jennifer Hamel and Christine Miller help a student measure an insect for class. (Photo by Marisol Amador)

Christian Caro, BS '12, took the course in Spring 2012 and worked in the lab in the fall. The discussion section of the course was his favorite part, Caro said.

"They weren't telling us what to think, and there wasn't necessarily a right or wrong answer," he said. "They actually wanted to know our thought process."

Caro said he enrolled in the course because he would soon be graduating and decided he needed research experience.

"For students who want to go to graduate school, or even students who are considering graduate school, research experience as an undergraduate is crucial," Miller said.

Getting involved in a research study changes how students perceive science classes, especially classes they take later in their college years, Miller said.

"A research experience, although not always fully comprehensive, can provide students with the perspective that they are acquiring a skill-set through their science classes," Hamel said. □

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