

Student Intern Programs Can Enhance Mosquito Control Operations

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In 2005, Anastasia Mosquito Control District (AMCD), St Augustine, FL, formally established a student intern program that benefits the interns, and embraces the District's mission and values. The comprehensive program spans 8-10 weeks, or more in some cases, and assists AMCD's applied research and education efforts, as well as its operational program. The intern program also provides the participating students an opportunity to study and work in the fields of bioscience and education. Interns can also be a valuable asset during the busy season! Besides conducting their projects, they can participate with educational events, insectary maintenance, surveillance and

field operations, and collaborate with other agencies. This experience can help refine an intern's long-term goals and contribute to the AMCD's progress in mosquito control and applied research.

The long range goals of the intern program are to improve our mosquito control operations through applied research and public education, as well as to foster an interest in mosquito control for both science and non-science students. In order to accomplish these goals, AMCD's staff closely mentors the interns on the scientific method, laboratory standards, and integrated mosquito management.

Financial support for interns can come from a variety of sources. The AMCD budget includes monies for 2 full-time summer interns, while a majority of the students are funded by outside sources or serve on a voluntary basis. For example, 4 interns in 2014 and 2015 were funded by industry specifically to help test products that may be of benefit to mosquito control.

Once accepted into the program, each intern is assigned a topic of applied research that ideally aligns with the AMCD's current mission research or education projects and utilizes or hones prior skills. Moreover, their project must be realistic to meet the time



Figure 1: 2015 AMCD student interns, left to right: Cat Smith-Lippi, University of South Florida; Kelly Seeger, Johns Hopkins University; Jennifer Gibson, Flagler College; Codi Anderson, University of North Carolina; and Kinsey Camelio, Flagler College.



Figure 2: 2013 AMCD student interns, left to right: Emily Shirley, Pedro Menendez High School; Rachel Shirley, Florida State University; Tanjim Hossain, University of Miami; and Claudia Davidson, University of Miami. Not shown: Lin Zhu, University of Miami; and Emily Thomson, Flagler College.

constraints. After a project has been assigned, the students work on conducting the necessary literature review, developing materials and methods for each experiment, and collecting data for analysis. At the end of the internship, students prepare a presentation on their research to educate and inform AMCD staff members about their project.

Since 2005 we have attracted 5 high school seniors, 18 undergraduates, and 14 MS and PhD degree candidates, all from 13 different universities and colleges. The many accomplishments of the intern program have included 5 new hires, 24 meeting presentations delivered, and 16 research manuscripts published, all while continuously providing cross-training of both their peers and District employees.

One high school student directly benefited from the program, when he received a 2nd place award in the state science competition, and went on to receive 3rd place nationally for his project on sugar questing behavior of Florida mosquitoes. Another intern, a graduate student, received the student competition award for her work on attractive toxic sugar baits.

One former intern, Jennifer Gibson,

was hired as a Biological Technician at AMCD. She related her experience: *“My six month internship experience at the Anastasia Mosquito Control District helped me develop in my career. While at AMCD I was able to get the personal time and attention dedicated to my professional and personal growth. The guidance I was given helped me achieve the highest standards in my work and assisted me in developing my own research designs. The managers of AMCD were especially helpful and because of them, I have grown and developed into a confident and capable public speaker. The continuous assistances showed me how to combine the need for organization with a job requirement of creativity. I am forever grateful with the opportunities I have been given because of this internship.”*

Another intern, Codi Anderson explained: *“During my stay here at Anastasia Mosquito Control, I have learned several things about myself as well as the world of scientific research. I have learned that opportunities like this don't come along for everyone, and I have been very fortunate to have the experiences that I have had. I have learned that no matter how many years of school you have been through or how many different jobs you have had, you will always continue to learn when you decide to work in a field*

such as this. I have learned that there are always people that are smarter than you, but you still know things that they don't know. I have been given the tools that I need to have a successful future in research, from writing skills to experimental design. I have come away from this experience with more confidence and motivation and a higher level of expectation for myself, as well as lasting connections and friendships.”

Mosquito control agencies that have or can muster adequate resources to support intern programs should strive to do so. Most interns report having had a positive experience and many return for subsequent enrollments. It is a win-win situation for both employer and employee.



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