A Banner Year for Student Research

For three Salisbury University student-researchers, the 2012-13 academic year provided national and international recognition for their efforts. From a highly coveted award, to a competitive graduate research fellowship, to the notice of Washington, D.C., lawmakers, all three are examples of how undergraduate research can lead to amazing accomplishments at SU and beyond.

Cambridge Bound

Dominique Kunciw earned one of the world’s most prestigious international scholarships, the Gates Cambridge award, to explore the development of drugs, especially for antibiotic-resistant diseases. In the process, she is fulfilling a lifelong dream to study near her birthplace in England. Chemistry major Kunciw, whose father Bohdan teaches in SU’s Mathematics and Computer Science Department, will pursue a Ph.D. in chemistry at the renowned University of Cambridge. Established by the Bill and Melinda Gates Foundation, the highly competitive scholarship is akin to Oxford’s Rhodes scholarship, or the Marshall, which also supports study in the United Kingdom.

At Cambridge, she will gain further experience in small molecule drug design and synthesis. “My goal,” she said, “is to be a research chemist affiliated with a major research university working on developing molecular therapies for treatment of diseases affecting people around the world.”

Kunciw will study under Dr. David Spring of the Chemistry Department and will be a member of the 600-year old Gonville and Caius College. Among its notable fellows are physicist Stephen Hawking. Twelve Nobel Prize winners also are graduates, including Francis Crick, who co-discovered the structure of DNA.
Inspiration in the Dung

Mallory Hagadorn’s fieldwork on an organic farm near Federalsburg last summer turned out to be the inspiration for an expanded project that has earned her a National Science Foundation Graduate Research Fellowship valued at $126,000 to further study dung beetles on farms across Maryland. Her three-year grant provides $30,000 in annual research stipends and covers tuition for her M.S. in applied biology from SU.

Working with Dr. Dana Price, a faculty member in SU’s Biological Science Department, and Dr. Anne Estes of the University of Maryland Medical School’s Institute of Genome Sciences, Hagadorn is identifying and comparing populations of dung beetles on organic versus conventionally managed pastures.

“Dung beetles play a crucial role in ecosystems,” Hagadorn explained, citing their ability to rapidly bury and remove animal waste, thus reducing pests attracted to it; aerate soil and cycle nutrients; and help maintain an overall natural balance.

Combining ecology with her growing interest in population genetics, Hagadorn’s project also includes DNA sequencing for the microorganisms that live symbiotically in the beetles’ guts. She wants to provide a further understanding of how they influence the functions and the distribution of the species.

A Congressional Presentation

Sharing research on robotic arms, Samim Manizade presented at Posters on the Hill, a national event attended by U.S. Congressional leaders and others. Selected by the Council on Undergraduate Research from among some 800 applicants nationwide, Manizade was one of only 60 student participants and the sole representative of a Maryland campus.

A physics/pre-engineering major, Manizade explored the “Computational Modeling of Robotic Arm Kinematics.” His project modeled a variety of arms with a computer-algebra system and used mathematical techniques to show their uses and applications in the field of electrical engineering.

Manizade was funded by SU’s Bridges to SUCCESS program, which is made possible by a nearly $1 million National Science Foundation grant dedicated to supporting the recruitment and retention of students in science, technology, engineering and mathematics (STEM) disciplines. He hopes to continue exploring robotics at SU.

“I had the most fun talking to the other undergraduate researchers,” Manizade said, describing some of their projects, including bio-concrete. He also appreciated experiencing such an interesting “environment of development.”

Beyond his academic research, Manizade has been appointed Student Regent for the University System of Maryland’s Board of Regents for the upcoming academic year.