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MSCC Students, Faculty Participate in NASA Grant, Research Program

Mid-South Community College, in partnership with Rust College, is participating in a National Aeronautics and Space Administration grant program that promotes research and curriculum development in aerospace-related disciplines.

Designed to benefit minority institutions, NASA, and the nation, the Curriculum Improvements Partnership Awards for Integration of Research (CIPAIR) grants focus on building, sustaining, and providing a skilled, knowledgeable, and diverse workforce to meet the agency and the country's emerging needs.

NASA, with input from scientists and educators from the academic community, private industry, and the National Science Foundation, awarded the \$150,000 CIPAIR



grant to Rust and MSCC with a goal of strengthening programs in science, technology, engineering, and mathematics (STEM) at the institutions. The colleges receive annual funding of about \$150,000 for up to three years, based on performance and availability of funds.

Through the program, MSCC and Rust College are developing significant strength and expertise in chemistry and biology to compete for additional research grants, develop new courses, and/or update existing ones with NASA-related STEM materials, to expand the pipeline of students transitioning from MSCC to Rust College and other four-year institutions, and to establish a culture of students excited and pro-active in hands-on research activities.

In the first year of the grant, MSCC and Rust hosted a two-day workshop in Mississippi on research-validated active engagement teaching techniques and assessment in introductory astronomy and earth sciences and coordinated a one-month summer science camp at RC that involved three students from MSCC.

In addition, MSCC conducted a semester-long peer tutorial program during the spring term, helping enhance student performance in Physical Science classes. Dr. Elaine Wilkins, Director of the MSCC's Learning Success Center, plans to test this model in other science classes as well.

MSCC selected one student, Katherine Dagastino of Marion, and RC selected two students to go to NASA centers in California and Alabama for a 10-week summer research internship program.

Dagastino worked with Dr. George Cooper on the chemical analyses of



Katherine Dagastino works in the NASA research facility

organic compounds found in soil and extraterrestrial samples. She had the opportunity to use several instruments and different techniques including gas chromatography-mass spectrometry, liquid chromatography-mass spectrometry, and ion exchange chromatography.

She said most interesting aspect of the NASA internship was “meeting people from all backgrounds, levels of education, and from all over the world.” She said the biggest challenge was “doing chemistry work with no background” but advised students interested in NASA internships to try something totally new. “It may just inspire you.”

Dagastino, who enrolled at the University of Memphis with plans to become a doctor of audiology, now wants to pursue a degree in biology in hopes of participating in astrobiology research.

The colleges also sent three faculty members (two from MSCC and one from Rust) to a six-week summer research program at NASA Ames in Moffett Field, Calif.

Dr. Azah Abanda, MSCC Chemistry and Earth Science faculty member, worked with scientists Drs. Brad Bebout and Leslie Prufert-Bebout on the use of lunar regolith simulant as a substrate for plant and microbial growth. He was particularly interested in the chemical and mineralogical changes associated with plant growth on lunar soil and in biomass production. Dr. Abanda hopes to integrate some of the geochemical and mineralogical techniques he observed in his classes at MSCC.

“It was a wonderful experience for me and for our students,” he said. “It was great working with some of the best and brightest minds in their fields and in the nation. It was a good fit for me as I was able to use my background and expertise.”

“It was also great to know that some of the research that I carried out during my time at Ames may find applications in future missions as NASA continues to explore the potential for long-term human travel to the moon and Mars.”

Shermel Brown, MSCC Mathematics faculty member, worked with NASA scientist Dr. George Cooper on sugar acids in 4.6 billion years old extraterrestrial samples. She focused on enantiomer excesses in these samples.

“Working with Dr. Cooper was one of the most exciting and rewarding experiences of my life,” Brown said. “I had the opportunity to learn about his research on sugar acids and carbonaceous meteorites.”

“You don’t realize how little you know until you are plunged into a world of brilliant scientists,” Brown said. “I had the opportunity to be a student all over again, but this time with new eyes and a different confidence.”

Brown is using some of what she learned in her College Algebra classes. She has incorporated a lesson on symmetry and logarithm as they relate to her work on sugar acids in meteorites.

In addition to the grants for MSCC and Rust College, similar awards were made to California State University, San Bernardino, and College of the Desert in Palm Desert, Calif.; Fond Du Lac Tribal College in Cloquet, Minn., and Navajo Technical College in Crownpoint, N.M.

The awards continue NASA’s commitment of achieving a broad-based, competitive aerospace research and technology development capability among the nation’s historically black colleges and universities, tribal colleges and universities, and Hispanic and other minority-serving institutions.

For information on global and extraterrestrial learning opportunities at MSCC, visit the campus at 2000 West Broadway in West Memphis, call the Admissions Office at (870) 733-6728, email admissions@midsouthcc.edu, or see the college’s website at www.midsouthcc.edu.

