Title: New Summer Research Experience Programs

Center: ERC for Bio-mediated and Bio-inspired Geotechnics (CBBG)

Achievement Date: Summer 2016

Outcome/Accomplishment: The NSF-funded Engineering Research Center for Bio-mediated and Bio-inspired Geotechnics (CBBG) implemented research opportunities to engage participants in the disciplines of microbiology, biology, geochemistry, geology, civil engineering, plant science, soil science, geoenvironmental, engineering education, and related areas.

Impact and Benefits: Out of 187 applicants, 29 highly qualified, innovative, and sustainably-minded participants were selected to participate in the first year of CBBG’s three summer programs: Research Experience for Undergraduates (REU), Research Experience for Teachers (RET), and Young Scholars (YS). Thirteen undergraduates (REU), eight K-14 teachers (RET), and eight high school students (YS) were immersed in technical research working in CBBG labs, and were exposed to a broad scope of projects. Participants became part of a research team at one of the four CBBG partner universities, and had the opportunity to experience the multidisciplinary nature of the center, and its aim to learn from nature, harness natural biological processes to revolutionize engineering systems that mitigate risks, and address challenges associated with urbanization, global climate change, and use of natural resources.

Explanation and Background: The REU, RET, and YS Programs give participants with diverse backgrounds and an interest in CBBG research an opportunity to participate in mentored lab projects. All participants spent the first week of the program at Arizona State University for orientation, and completion of the required safety training, “Biogeotechnics 101.” They participated in various webinars from Thrust Leaders and other center researchers, lab tours, workshops on leadership and design thinking, and fun, hands-on activities. Ten of the REUs spent the next seven weeks at either Georgia Institute of Technology, New Mexico State University, and University of California, Davis, but remained in contact through the weekly webinars. During the last week, the REUs from the four campuses each shared their research via videoconferencing. After working in the labs in the mornings, the RETs met to work on CBBG-based curriculum to take back to their classrooms in the fall. A session was arranged so the CBBG RETs could share their lesson plans with RETs from QESST (another NSF-funded ERC, headquartered at ASU). The high school students in the YS Program worked each day in the CBBG labs, and worked with their mentors to create a research poster based on their project. A poster reception was held in the ASU University Club at the end of June so the students could present their research to family and friends.