

University of Northern Colorado Awarded National Science Foundation Grant for STEM Teacher Development

Earth Sciences professor William Hoyt and Mathematical Sciences professor Shandy Hauk from the UNC College of Natural and Health Sciences Math and Science Teaching Institute (MAST) have partnered with 10 other universities and K-12 school districts from across the nation in a \$12.5 million, 5-year, project recently funded by the National Science Foundation's Mathematics and Science Partnership program. The multi-institution partnership will create a dynamic teacher development program targeting middle school and high school teachers in the STEM disciplines - science, technology, engineering, and mathematics.

UNC will receive an \$859,000 subcontract from the Natural Resource Ecology Laboratory at Colorado State University. Two additional partners from Colorado are the Greeley/Evans School District 6, and the Poudre School District. Other partners include Michigan State University, Plainwell Community Schools, University of California, Santa Barbara, Santa Barbara School District, Cary Institute of Ecosystem Studies, Towson University, Baltimore City and County Public Schools, University of Wyoming, and the Long Term Ecological Research Network Office at the University of New Mexico.

The project focus will be on human-ecosystem interactions to develop culturally relevant ecology from scientific and educational perspectives. Providing K-12 teachers with content knowledge and increasing student preparation and interest in STEM disciplines is an urgent local, national, and worldwide need. Additionally, grant collaborators will examine existing K-12 curricula and then refine and extend current frameworks and assessments for learning progressions leading to environmental science literacy and associated mathematics that focus on carbon cycling, water systems and biodiversity in socio-ecological systems. UNC will contribute content and pedagogy specialists in science and mathematics, a post-doctoral scholar specializing in cultural relevancy and learning progressions, and a graduate student fellow.

Researchers across the project will create a framework where environmental science literacy drives learning of core science and mathematics concepts. The project will include development of teacher-in-residence programs, research internships for teachers, placement of graduate students into K-12 classrooms, professional development workshops leading to graduate credit and/or graduate degrees and professional learning communities. The program has the potential to reach 1,000 teachers and 500,000 students in the country.

Dr. Hauk's research focus is in the areas of culturally responsive mathematics curriculum and instruction, K-20 teacher professional development, and the use of web-based homework and assessment in mathematics learning. Dr. Hoyt's research interests are in the areas of coral reefs, earth systems science education, and professional development programs for K-12 science teachers.