



## **Broadening Diversity in the Geosciences through Teacher-Student Workshops that Emphasizes Community-Based Research Projects**

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The Geosciences Institute for Research and Education at the University of Michigan-Dearborn (UM-D) has been an example of a successful and effective model in increasing the participation of underrepresented groups in the geosciences. The program emphasizes involving middle school and at-risk high school students from Detroit area public schools along with their teachers in urban geology research projects through a series of spring and summer workshops. The workshops introduce students to the geosciences by emphasizing how geology can be used as a tool to solve community-based environmental problems in a metropolitan setting. Students work alongside their teachers and UM-D faculty on projects that include the assessment of brownfield sites, installation of groundwater monitoring wells, and evaluation of land use impact on groundwater and surface water quality. Spring workshops focused on students from three middle schools in Detroit, while the summer workshops focused more on middle school and high school teacher training, but also included a small group of middle school and high school students. Instruments used to evaluate the effectiveness of the summer workshops included the Science Teaching Efficacy Belief Instrument (STEBI), Geoscience Concept Inventory (GCI), and pre- and post-workshop questionnaires and focus groups demonstrate that we have not only increased student awareness of the geosciences but are motivating students to pursue career opportunities in science. Since the Institute began in 2005, we have reached over 100 middle and high school students and 75 teachers, and the Earth Science major at UM-D has tripled in size and we have quadrupled the number of minority students taking introductory geology courses during this time.