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UIUC diversity and inclusion efforts in STEM education

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It is well known that the number of jobs in science and engineering is expected to grow in the next few years. However, the nation's current student body is not prepared nor sufficiently interested to pursue careers in the science, technology, engineering and mathematics (STEM) fields. More alarming is the fact that the demographics of students that are attracted to STEM fields demonstrate a significant gender and race/ethnicity gap, with women, Hispanics, and African-Americans being vastly underrepresented in the STEM fields. These gaps in STEM participation rates has led the University of Illinois at Urbana-Champaign (UIUC) to develop multiple outreach programs that can help increase the participation of minority students in college-level STEM disciplines.

A partnership between both the Colleges of Engineering and Education at UIUC, and the Chicago Pre-College Science & Engineering Program (ChiS&E), a non-profit organization that aims to prepare inner-city students for college STEM-related disciplines, developed the Illinois-ChiS&E Alliance for Nurturing Excellence in STEM Education and Leadership (ICANEXSEL) Program, an out-of-school Saturday program for Chicago Public School (CPS) middle school students. The ICANEXSEL Program seeks to improve opportunities in STEM for students from traditionally underrepresented groups by: 1) collaborating with experts to develop engaging, hands-on, math-based curricula, 2) recruiting and training CPS teachers on best practices in project-based and collaborative learning in order to facilitate the Saturday sessions, 3) recruiting and training current UIUC students to serve as mentors to the participating students via the development of a new service-learning course, the Engineering for Social Justice Scholars Program, and 4) working with the parents of participating students to help them understand the curricular needs of their children along with the steps and actions necessary to help them become college ready. While the ICANEXSEL was launched as a 6th-8th grade program, it seeks to add an additional grade level every year to develop a comprehensive K-12 pathway program.

To further promote the participation of women in the STEM fields, the College of Engineering at UIUC will build from its existing programming in order to include more opportunities for women to engage with STEM. As a successful summer program for high school women since 1998, the Girls' Adventures in Math, Engineering, and Science (GAMES) Summer Camp will launch its first no-cost, middle school program in the summer of 2017. Through a partnership with the Materials Science & Engineering Department, the College of Engineering will offer a one-week day camp for middle school girls in which students will investigate how to develop new materials, understand their function, and predict ways in which they will evolve in the future. This addition to the existing GAMES Camp program will promote participation of women in STEM by engaging them at an early age, which has been shown to be crucial in the recruitment of women to the STEM fields.

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