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Ethnic and Gender Equity in Engineering: How Can Physics Help?

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The underrepresentation of women, African Americans and Latinos is well known in the fields of engineering and other science-based fields. The Extended Physics program at Rutgers University has been part of a successful university-wide effort to improve the degree completion of students from groups underrepresented in STEM majors (science, technology, engineering and mathematics) for nearly 20 years. In this talk I will address the issues known to contribute to the low representation of women and some ethnic minority groups in engineering, with an emphasis on the importance of discipline-specific reforms in attaining equitable representation in STEM professions. I will describe Rutgers' Extended Analytical Physics courses, which offer an alternative to and run parallel to the mainstream first-year introductory physics courses for engineers. Students enrolled in these courses have significantly lower Math SAT scores, but at the end achieve the levels of conceptual understanding and problem solving similar to the mainstream students. I will also discuss the history and development of the Extended Analytical Physics courses and present an evaluation of the program's impact on the perseverance of engineering students to degree completion.