

APR20-2020-001275

Abstract for an Invited Paper  
for the APR20 Meeting of  
the American Physical Society

**Diversity and Inclusivity in STEM: Using Large Data Sets to Explore Underlying Mechanisms for Demographic Performance Gaps in Introductory STEM Courses**

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How can we create inclusive undergraduate STEM learning environments, which allow diverse populations of students to thrive? Previous research has shown that the first two years of undergraduate education is critical in pursuing STEM fields and retention in general. In particular, performance in introductory STEM courses is a key indicator of pursuing STEM fields. In this talk, I will present two research studies exploring the demographic performance gaps in introductory STEM courses using large data sets across four different universities and various STEM introductory courses. Such large data sets enabled us to conduct more thorough analysis for examining possible mechanisms behind the demographic performance gaps. The analysis shows that this underperformance is dominated by the incoming preparation of the students, as opposed to other possible factors such as social psychological factors. I will conclude with some suggestions as to how these findings might be used to guide educators to design more effective interventions to support the success of students from underrepresented demographic groups in their introductory STEM courses at Stanford and elsewhere.