

Insights from Two National Studies of Precalculus through Calculus 2

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4-5pm in JWB 335

reception at 3:30pm in JWB lounge (2nd floor)

Hosted by the Department of Mathematics

In this presentation I report on results and insights from two national studies of Precalculus through Calculus 2. The first project, Progress through Calculus, is an investigation of the factors that influence student success over the Precalculus through Calculus 2 (P2C2) sequence required of most STEM majors. As part of this project we conducted a census survey of all mathematics departments that offer a graduate degree in mathematics. From this, I report the viewpoints of departments about features shown to support students' success, as well as the extent to which these features are being implemented across the country. The second project, Student Engagement in Mathematics through an Institutional Network for Active Learning, is investigating departmental change that contributes to teaching and learning environments that improve student learning in the P2C2 sequence, with a particular focus on the use of active learning strategies. Changing department culture, norms, and practices to support widespread use of active learning is notoriously difficult, and case studies of departments that have successfully made such changes are rare. I highlight the practices and policies of two, research-oriented mathematics departments that have made considerable progress on the challenge of infusing active learning into their introductory mathematics courses in sustainable and widespread ways. In particular, I highlight how departmental and institutional leadership; P2C2 structures such as course coordination; use of data; student resources such as learning or tutoring centers; and professional development have been mutually supportive to initiate, implement, and sustain active learning in P2C2 courses at these two institutions.



Chris Rasmussen is Professor of mathematics education and Associate Chair in the Department of Mathematics and Statistics at San Diego State University. He received his B.A., M.A. and Ph.D. from the University of Maryland in Mechanical Engineering, Mathematics, and Mathematics Education, respectively. His research investigates inquiry-oriented approaches to the learning and teaching of undergraduate mathematics, focusing on how mathematical ideas are developed through student exploration and teacher-student classroom discourse.