

The STEM Service Courses Initiative of Project PROMESAS:¹
Pathways with Regional Outreach and Mathematics Excellence for Student Achievement in STEM

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In this poster, we present preliminary results of how Project PROMESAS' STEM Service Courses (SSC) initiative assists collegiate instructors ($n = 14$) in transforming their teaching of Calculus I. These instructors participated in a one-week summer institute focused on integrating student-centered activities via rich tasks and promoting a sense of community in the classroom. During the fall 2017 semester, they adopted and adapted ideas from the summer institute and participated in monthly day-long follow-up meetings. The monthly meetings were an opportunity to continue learning about student-centered activities and to share newly created teaching materials. As part of the evaluation of this project, the instructors journaled during the summer institute and each month during the fall. These journal entries serve as our data: it suggests that although our instructors struggle balancing student-centered activities with teaching the required content, they are committed to transforming their teaching.

Key words: collegiate PD, rich tasks, sense of community, student-centered learning

Nationally, lack of student persistence through the Calculus sequence is a significant contributor for students leaving their intended STEM disciplines (Bressoud, 2013). Research indicates that negative learning experiences “endured” during Calculus courses have the most effect on student retention (Seymore & Hewitt, 1997; Ulricksen, et al., 2010). Project PROMESAS is a regional STEM initiative where mathematics faculty from a 4-year Hispanic-Serving Institution (HSI) and 2-year HSI community colleges collaboratively address systemic change in teaching. The aim of Project PROMESAS' SSC initiative is to transform mathematics pathways into STEM and to strengthen the STEM student success pipeline.

The project emphasizes faculty development on cultural competency, inclusive pedagogy, and renewing the curriculum itself. Thus, we created a 2-year long professional development program for collegiate instructors. The curriculum for the PD focused on integrating student-centered activities via rich tasks while promoting a sense of community in the classroom as emphasized in the MAA *Instructional Practices Guide* (in press). The first cohort has completed a summer institute and follow-up monthly meetings for a semester, for all of which they responded to journal prompts. Preliminary analysis of these journal entries suggests that although our instructors struggle balancing student-centered activities with teaching the required content, they are committed to transforming their teaching. In our poster, we will detail the program, participants, data collection, and preliminary results of how this program is transforming our instructors' teaching of Calculus I. We will also share plans for the second cohort and our plans to assess the impact that this program has on STEM students' attitudes towards mathematics and their success in their STEM discipline.

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References

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