

Texas State University
Department of Mathematics Colloquium
Friday, September 18, 2020
3:30pm on Zoom

***ITsCRITiCAL: An Intervention to Promote Students' Reasoning
and Address Power Dynamics in College Algebra***



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Abstract: A systemic problem impacts students' learning opportunities in introductory undergraduate mathematics courses such as college algebra: An overemphasis on students' compliant answer finding and an underemphasis on students' mathematical reasoning. I discuss the ITsCRITiCAL intervention (Implementing Techivities to Promote Students' Covariational Reasoning and Instructional Transformation in College Algebra) and explain how it addresses classroom power dynamics and promotes students' reasoning. By embedding innovative digital tasks (Techivities) into college algebra courses and extending opportunities for instructors to engage in collaborative professional development, ITsCRITiCAL fosters students' reasoning about attributes capable of varying and possible to measure (Covariational Reasoning). ITsCRITiCAL centers covariational reasoning because it is important for students' understanding of key mathematical ideas such as rate and function, as well as their critical thinking as an educated citizen. I share the theory of change guiding the intervention, describe resulting products, address impacts on students' reasoning, and discuss efforts to promote sustainability and growth.

