Statistics Seminar

Educating The Workforce of The Future: Teacher Education in Statistics and Data Science

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Friday, September 1, 12:00 pm             Derr 325

Abstract: Students in the United States can start their exposure to statistical concepts as early as second grade. Often the scope and emphasis of these ideas are guided by national or local standards and facilitated by teachers. Both standards and teacher education are, for the most part, behind the trends of the discipline. Scholars in the area of statistics teacher education are challenged by trying to align research agendas and teacher preparation programs that respond to new trends. In this presentation, we will examine current student and teacher standards and argue that although statistics and data science are ‘friends,’ they fight for space in a crowded curriculum. In addition, empirical data will be presented to argue that secondary teachers are emerging as competent statistics educators but are still learning the discipline and how to teach it. Hence, the current times pose the following questions that the field must address: 1) What is the relationship between statistics and data science for curriculum development at the school level? 2) What should be the focus of teaching-learning with respect to statistics and data science? 3) Should we change student and teacher standards to reflect the new needs? 4) Who should take the leadership of these changes? Proposed answers to these questions will be presented as a way to motivate deeper conversations.

Bio: Dr. M. Alejandra Sorto earned her Ph.D. in Mathematics from Michigan State University, and she is currently a faculty member of the Mathematics Department at Texas State University. She has conducted multiple research studies that focus on developing analytic tools to study the teaching of primary mathematics classrooms in Latin America, Africa, and Cambodia. She developed learners and teacher mathematics content tests, pedagogical content knowledge tests for preservice and in-service teachers, and teacher self-efficacy scales for teaching statistics in secondary education. In addition, she has developed classroom rubrics to analyze classroom practices and pedagogy at the primary and secondary levels for US and Brazilian primary classrooms. She has more recently been involved in projects attending to positioning theory and funds of knowledge in service of more equitable mathematics learning experiences.

Dr. Sorto has also worked as a facilitator of professional development for in-service teachers as part of her National Science Foundation project to study the impact of teacher knowledge of pedagogical techniques on learning gains. She has taught multiple content and pedagogical courses for in-service teachers as a Mathematics Teacher Educator at Texas State University.