You are cordially invited to attend the
*MSU Mathematics Education Colloquium*

Presented by:
Professor Kevin C. Moore

University of Georgia

Tuesday,
October 10, 2017

1:00 – 2:30 p.m.
252 Erickson Hall
MSU

## *Students' graphing activities: Re-presentations of what?*

*Students' representational activities are key to their mathematical development. Specifically, students' representational activities in constructing displayed graphs can afford them the figurative material necessary to engage in and abstract mental operations. In this talk, I draw on Piagetian ideas to frame the sophistication of students' ways of thinking for graphing. Namely, I illustrate distinctions between those ways of thinking dominated by sensorimotor experience and those ways of thinking dominated by the coordination of mental actions. Against the backdrop of these distinctions, I argue that we, as educators and researchers, need to broaden students' representational experiences. Instructionally, doing so can afford students increased opportunities to construct productive and generative ways of thinking for mathematical ideas and concepts. In terms of research, broadening students' representational experiences enables researchers to form more viable and detailed working hypotheses of students' ways of thinking for graphing and related topics.*

Kevin C. Moore a mathematics education researcher at University of Georgia. He received his B.S. and M.S. in Applied Mathematics from The University of Akron. He worked under Marilyn Carlson's guidance to receive his Ph.D. in Mathematics from Arizona State University with a research emphasis in mathematics education. His research focuses on the learning and teaching of mathematics in algebra, precalculus, and calculus areas, and he has worked with secondary, undergraduate, and graduate mathematics students, as well as teachers and faculty in these respective areas. His work foregrounds understanding how individuals reason quantitatively and covariationally, including how these reasoning processes influence their learning. Most recently he has constructed developmental models of student thinking that explain the cognitive mechanisms involved in constructing and representing invariant quantitative and covariational structures. In developing these models, his team has worked to differentiate between students'' thinking as dominated by particular sensorimotor experiences and students' thinking as dominated by the coordination of mental actions, the latter of which is a hallmark of mathematical thinking.

*The Program in Mathematics Education sponsors this event.*