

The field of mathematics education research encompasses a wide range of domains (e.g., teaching, learning, curriculum, assessment, technology) and draws upon research methods from both the physical and social sciences. The goal of the RTG presentations will be to acquaint the audience with research being conducted by math department faculty, as well as to provide a sense of the field as a whole. Currently, faculty research foci include mathematical knowledge for teaching, numeracy and its applications to citizenship, student learning of proof, and interdisciplinary work across the disciplines of mathematics and mathematics education. Below are questions researchers investigate within each of these foci. Some of these questions will be addressed during the RTG talks, while others will serve as potential research areas that could be explored in the fall.

- 1) Mathematics knowledge for teaching – What *mathematical* knowledge is needed to teach beyond solid knowledge of the content itself?
- 2) Numeracy and citizenship – How can we teach mathematics in ways that encourage students to *use* mathematics to think about the world outside of the classroom?
- 3) Learning proof – Why is learning to prove and write proof so difficult for many students? What misconceptions do students tend to exhibit and how can we overcome these?
- 4) Cross-disciplinary collaboration – How can mathematicians and educators work together to improve mathematics teaching and learning? How can we improve communication across disciplinary boundaries?