

Department of Mathematics Colloquium

The Role and Use of Examples in Learning to Prove



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September 6, 2019
3:30 - 4:30pm
DERR 329

Mathematicians often spend significant time carefully considering and analyzing examples prior to attempting to develop a formal proof of a conjecture. This effort provides not only a deeper understanding of the conjecture but also insight into the development of a proof. In contrast, students typically spend little time carefully considering and analyzing examples prior to attempting to develop a formal proof. Moreover, students typically receive very little, if any, explicit instruction on how to strategically think about and analyze examples in developing, exploring, understanding, and proving conjectures. In this talk, I will share research results from a project that investigated the nature of middle school and high school students', undergraduate students', and mathematicians' thinking about the examples they use when developing, exploring, and proving conjectures; and the ways in which thinking about and analyzing examples may facilitate the development of students' learning to prove.