

1106-VT-2698      **Caroline J. Hagen\*** ([caroline.hagen@tufts.edu](mailto:caroline.hagen@tufts.edu)). *Students' Knowledge of Functions and Their Learning of Key Calculus Concepts.*

The transition into university-level mathematics is a critical juncture in the education of future science, technology, engineering, and mathematics (STEM) professionals. As student retention in STEM fields remains far too low, there is a need to improve student learning outcomes in the courses that often push students out of STEM fields, particularly introductory calculus. Research shows that even high-performing calculus students often demonstrate weak understandings of key calculus concepts that are necessary in future math, science, and engineering courses. Thus, more work needs to be done on how to foster more robust learning in undergraduate calculus. In addition, research has shown that strong understandings of basic notions about mathematical functions support many kinds of mathematics learning. To date, not enough is known about students' knowledge of functions and how this may influence their learning of key introductory calculus concepts. This talk helps address this research gap by presenting results of a study of undergraduate calculus students' ideas about functions and how this interacts with their understandings of basic calculus concepts such as limit and rate of change, and the implications this may have on the teaching of calculus at the undergraduate level. (Received September 16, 2014)