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Recently, increasing interest in “flipped” or inverted classes has resulted in mathematics faculty experimenting with this pedagogy. We will present the preliminary results from the second phase of a NSF funded project (DUE #1245059) at the University of Hartford comparing traditional lecture-based instruction and a “flipping” pedagogy. This quasi-experimental study, in which two faculty members each taught one section of traditional and flipped Calculus I, focuses on differences in student performance and understanding. In the flipped sections, initial exposure to the material was via department-produced videos; class time was dedicated to problem solving and discussion. In the traditional sections, instructors incorporated examples from the video into lecture, but provided minimal time for problem solving or discussion. Results include data from pre/post-tests of student understanding, student work on common mid-semester and final exams, student focus group interviews and student surveys. (Received September 15, 2013)