1077-M1-2800 **Kyeong Hah Roh** and **Owen Davis*** (`odavis@asu.edu`), School of Mathematical & Statistical Sciences, Arizona State Uniiversity, Tempe, AZ 85233, and **Aviva Halani**. *Learning mathematics from peers with different reasoning styles.* Preliminary report.

The aim of this study is to explore how students might learn advanced mathematics from their peers with different reasoning styles. We conducted a teaching experiment in the fall semester of 2009 with two undergraduate students, neither of whom had previously studied advanced calculus. The students exhibited different reasoning styles when making arguments: One student was more intuitive in nature and produced semantic, especially visual, representation whereas the other was more formal in nature and produced syntactic representation. We found that the students often reinterpreted each other's ideas by requests from the instructor. Such activities challenged the students to understand their peer's mathematics and provided opportunities to deepen conceptual understanding and improve proof constructions by adapting their peer's reasoning style. In this presentation, we illustrate three episodes where the students tried to understand the formal definition of sequence convergence, construct an existence proof, and rigorously define the continuity. Particular attention will be paid to the role of the instructor in facilitating student interaction and its effect on the reasoning of each student. (Received September 22, 2011)