1056-P5-753   **Evan Fuller*** (`fullere@montclair.edu`), Department of Mathematical Sciences, Montclair State University, 1 Normal Ave, Montclair, NJ 07043, and **Keith Weber**, **Pablo Mejia-Ramos**, **Kathryn Rhoads**, **Robert Search** and **Aron Samkoff**. *Understanding mathematical proofs: What does it mean and how can it be assessed?* Preliminary report.

In advanced mathematical courses, students spend a substantial amount of time reading proofs that appear in their textbooks or are presented to them during lecture. However, what students can learn by reading mathematical proofs, what it means to understand a mathematical proof, and how this understanding can be assessed are all open questions in mathematics education that are in need of research. In practice, students' understanding of a proof is assessed–to the extent it is assessed at all–by asking students to reproduce the proof or make minor adjustments to the proof to prove a similar theorem. In this presentation, we suggest that there are multiple dimensions to understanding a proof. A proof can be understood in terms of aspects that include (a) its logical structure, (b) its high-level ideas or structure, (c) the method that is employed, or (d) how it relates to specific examples.. We also illustrate how each type of understanding can be assessed in the context of a particular proof. (Received September 20, 2009)