

1086-D1-1947 **Suzanne Sumner*** (ssumner@umw.edu), 1301 College Avenue, Fredericksburg, VA 22401.
Intensive Experiences for Undergraduate Mathematics.

Students often leave mathematics courses performing the necessary calculations, yet with no deep understanding of the material. If assignments stress the communication of quantitative ideas, students must articulate the mathematics, and it becomes clear whether they have a thorough understanding. Three intensive courses will be demonstrated: Learning by Exploring in Mathematics of Chaos first-year seminar; Learning by Writing in History of Mathematics; and Learning through Speaking in Introduction to Mathematical Modeling, studying environmental problems. (Received September 24, 2012)