1056-R1-1382   **William E Fenton*** (`wfenton@bellarmine.edu`), Dept. of Mathematics, Bellarmine University, 2001 Newburg Road, Louisville, KY 40205. *Exploratory Labs in Multivariable Calculus.* Preliminary report.

My department offers Calculus III with a weekly lab period. When I have taught the course, I used these lab times for computer explorations. Over several years, I have developed a collection of lab activities that cover the entire course. Typically student groups do 7-8 short activities in a two hour lab period. Following a constructivist approach, these activities introduce concepts and build an experiential foundation on which to build in the ensuing class periods. The activities are written for Maple but also ask the students to sketch, calculate, and write.

For this presentation, I will demonstrate a small selection of activities. One activity uses numerical computations to explore properties of the dot product. A second activity uses graphs to explore local linearity and contour plots. A third uses computation to investigate Riemann sums in two variables and the double integral. Other activities may be included as time allows. (Received September 21, 2009)