1046-S1-1420   **Thomas W Milligan*** (`tmilligan1@ucok.edu`), Dr. Thomas Milligan, Department of Mathematics and Statistics, Edmond, OK 73034-5209. *Learning Through Generalization: Using First Semester Calculus Concepts to Teach Multivariable Calculus.* Preliminary report.

One of the most useful skills that a beginning mathematics student needs to learn is how to generalize, or take a known concept and use it in a more abstract or more general setting. For example, taking the definition of an open interval and translating it to open disks in two dimensions. The study of both differential and integral calculus on functions of two or more variables is an ideal setting to introduce students to the skills needed to generalize ideas on there own, while also reinforcing those concepts learned in the first semester calculus course. Starting at the definition of multivariable functions and immediately followed by the limit definition, one can introduce to students how to generalize the one-variable definitions to use them to define concepts in two or more variables. After modelling how to do this with the first couple concepts, one can begin to ask students how to generalize the concepts on their own. Different possible methods are discussed, and some student successes and problems are addresses. (Received September 15, 2008)