1023-J1-176 **Vicky Williams Klima*** (klimav@appstate.edu), Department of Mathematical Sciences, Appalachian State University, NC 20607. *Using Maple to See the Solution to the Least Squares Problem.* Preliminary report.

Certainly least squares analysis is an important application of linear algebra. However, the thorough development of the normal equations (using orthogonal projections, the fundamental subspaces, etc.) is quite technical and thus rather time consuming. Even if sufficient class time is devoted to the development of these equations, students often focus on the computational aspects of the derivation and fail to see the beauty in the solution. This talk introduces a project in which students develop the normal equations by analyzing a series of graphs that they create using the software package Maple. By literally seeing the normal equations develop, the students gain a better appreciation for how and why the normal equations solve the least squares problem. (Received August 18, 2006)