1056-G1-1380     **Daniel R. Jordan\*** (`djordan@colum.edu`), Columbia College Chicago, Dept. of Science & Math, 600 S. Michigan Ave., Chicago, IL 60605. *Programming Linear Algebra.*

Offering a course in Linear Algebra to students with a strong foundation in computer programming presents several unique opportunities. Among these is the chance to make use of students' programming skills to deepen their understanding of the mathematical concepts and algorithms. In this presentation, I will describe two programming projects along with the specific mathematical and programming concepts that they reinforce. The first is a "reverse graphing calculator" which determines and graphs the equation of the polynomial passing through a given set of points in the Cartesian plane. The second is a "three-dimensional modeler" which, given three-dimensional coordinates for a set of vertices and specifications for facets, renders an image of the object in perspective and with appropriate shading. These applications require that the students write code for a variety of linear algebra algorithms, including Gauss-Jordan elimination, matrix and vector arithmetic, and others. In addition to strengthening students' mathematical understanding, these projects also help to improve their programming skills as well as to provide them with concrete and relevant examples of the applications of advanced mathematics. (Received September 21, 2009)