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Paul E. Fishback* (fishbacp@gvsu.edu), 1 Campus Drive, Grand Valley State University, Allendale, MI 49418. *A Two-Course Sequence on Mathematical Programming for Undergraduates.*

Linear and nonlinear programming courses can provide students a greater appreciation of the central role linear algebra plays in addressing real-world optimization problems. This talk will describe the speaker's experiences teaching a mathematical programming course sequence having calculus and a first linear algebra course as its prerequisites. A major instructional objective is for students to recognize how basic linear algebra tools lead to fundamental results in the field of mathematical programming. Partitioned matrix multiplication, for example, yields an elegant means for developing duality theory and for performing sensitivity analysis. In these courses students use the graphic, symbolic, numeric, and programming capabilities of Maple to deepen their understanding of important concepts and to complete team projects addressing problems in the areas of transportation, scheduling, machine learning, and finance theory. (Received September 14, 2009)