

1035-M1-1147 **Stephen Szydlik*** (szydliks@uwosh.edu), Mathematics Department, University of Wisconsin-Oshkosh, 800 Algoma Blvd., Oshkosh, WI 54901. *The Problem with the “Junk Food Problem”*.

Using a matrix as a placeholder for the coefficients in a linear system is perhaps the most fundamental idea in linear algebra. This simple idea nevertheless leads to rich opportunities for data collection and analysis, critical thinking, and some surprisingly deep mathematics. In this talk, I will discuss some of the surprising challenges that can arise when solving a system of linear equations using real data. The context, calculating the different types of calories in foods, was a seemingly straightforward class activity for the author that evolved into a deeper exploration of issues in numerical analysis, including error analysis and stability in linear systems. (Received September 18, 2007)