MATH-332: Linear Algebra Chapter: 01

Linear Equations in Linear Algebra

Section 1.4: Matrix Equation $\mathbf{Ax} = \mathbf{b}$

pgs. 40-49 *June 22, 2009*

Lecture: Matrix Equation $\mathbf{Ax} = \mathbf{b}$

Topics:	Equivalence of matrix product and linear combinations of column vectors Existence of solution Properties of the matrix-vector product
Problems	Prac: 1,2 Prob: 9, 13, 15, 17, 23, 25

Section Goals

- Understand the connection between the matrix equation of a linear system and its equivalent vector equation.
- Characterize consistency of a linear system in terms of pivot positions, linear combinations and spanning sets.

Section Objectives

- Reiterate the four descriptions of a linear system of equations.
- Present theorem 1.4 on page 43, which states the equivalence of each of the four perspectives in terms of the existence of solutions to a linear system.
- Continue examples of the row-reduction algorithm drawing conclusions from echelon forms pertinent to the previous characterizations.