LE CTU RE 8

Review Session

0.1. Vectors in $\mathbb{R}^n$.

0.1.1. Vector Addition.

0.1.2. Scalar Multiplication.

0.1.3. Linear Combinations of Vectors.

0.1.4. Dot Products.

0.2. Geometry of Vector Spaces.

0.2.1. Lines, Planes and Hyperplanes.

0.2.2. Cauchy-Schwarz Inequality: $|u \cdot v| \leq \|u\| \|v\|$. 

0.2.3. Triangle Inequality: $\|u + v\| \leq \|u\| + \|v\|$.

0.3. Matrices and Matrix Algebra.

0.3.1. Matrices and Linear Systems: Augmented Matrices.

0.3.2. Matrix Multiplication.

0.3.3. Matrix Addition.

0.3.4. The Transpose of a Matrix.

0.4. Systems of Linear Equations.

0.4.1. The Geometry of Linear Systems and Nature of Solution Spaces.

0.4.2. Elementary Row Operations.

0.4.3. Row-Echelon Form.

0.4.4. Reduced Row-Echelon Form.

0.4.5. Solving Linear Equations.

0.4.6. Elementary Matrices.

0.5. Inverses of Square Matrices.
0.5.1. Properties of Matrix Inverses.

0.6. Subspaces and Bases.