Quick Review for Exam2
Math 434/534

• Learn the Following Definitions:
  Householder matrix, QR Factorization, Cholesky Decomposition, SVD and Generalized
  Inverse, Strictly Diagonally Dominant Matrix.

• Learn the statements of the following Theorems (NO Proof, Just the Statements):
  Theorem 6.4 and the paragraph following that Theorem on Page 131.

• Roundoff Property of Householder’s Method for QR Factorization on Page 191.

• Numerical Difficulties of the Normal Equations Method on Page 253. Properties of
  SVD on Page 216 (Theorem 7.27).

• (a) Learn how to solve a linear system problem using (i) Gaussian Elimination with
    Partial Pivoting, (ii) Cholesky Factorization, and (iii) QR Factorization. (b) Learn
    how to compute the Inverse of a Matrix by using GEPP.

• Learn how to find Least-Squares Solutions using QR Factorization and SVD.

• Learn the Proofs of Properties of Singular Values and Singular Vectors in Theorem
  7.27 on Page 216.

• Learn the flop-counts for Gaussian Elimination, Householder QR Factorization, and
  Computing Matrix Vector Products with Householder Matrices (Page 185).

• Learn Algorithm 7.1 of how to create zeros in a vector using a Householder matrix

• Learn Theorem 7.19 on SVD (page 212). No proof needed.

• Learn Algorithm 6.6 on Iterative Refinement