Be able to define and use the following terminology

- linear combination, span, linearly independent.
- subspace of a vector space, basis of a vector space.
- column space, row space and nullspace of a matrix.

Determinants

- Be able to compute the determinant of a small matrix (2 × 2 or 3 × 3), or of a matrix that has lots of zeros in it.
- Know that you can expand along any row or any column. Be careful about the signs!
- Know the determinants of the elementary matrices—those used to do row operations.
- Know the main theorems: the determinant of a product of matrices, the determinant of the inverse of a matrix. See exercises 3.2 # 15-20, 27, 28, 37-40.
- Be able to find the area of a parallelogram. (3.3 #19-24).

Know the theorems

- Unique representatio theorem (4.4 Thm 7).
- The inverse matrix theorem.
- The basis-dimension theorems (4.4 Thm 10-12, 4.5 #19-20, 29-30).
- See exercises 4.2 #25-26; 4.3 #21-24.

Bases for vector spaces

- Let A be a matrix. Be able to compute a basis for the nullspace, row space and column space of A.
- Be able to compute and use coordinate change matrices. See 4.4 #1-12; 4.7 #1-11.