Norwalk Community College
Learning Outcomes for MAT 272 – Linear Algebra

After completing Linear Algebra, the student should be able to:

- Prove elementary statements concerning the theory of systems of linear equations
- Solve application problems of systems of linear equations
- Perform the operations of addition, scalar multiplication, multiplication, and find the inverses and transposes of matrices
- Calculate determinants using row operations, column operations, and expansion down any column or across any row
- Prove elementary statements concerning the theory of matrices and determinants
- Prove algebraic statements about vector addition, scalar multiplication, inner products, projections, norms, orthogonal vectors, linear independence, spanning sets, subspaces, bases, dimension and rank
- Write the relationships between A (being invertible) , det A, $AX = 0$ having a solution, the rank of A and linear independence
- Find the kernel, rank, range and nullity of a linear transformation
- Calculate eigenvalues, eigenvectors and eigenspaces
- Solve projected steady state dynamical systems
- Determine if a matrix is diagonalizable, and if it is, diagonalize it