COMPETENCIES
MATH 1630 – Finite Math

1. Review of linear equations
   a. Equations of lines (general, slope-intercept, point-slope)
   b. Graphing linear equations
   c. Finding slope and y-intercept
   d. Generating an equation of a line
   e. Determining if lines are parallel, coincidental, intersecting, perpendicular
2. Business applications of linear functions
   a. Linear cost, revenue, and profit functions; break-even analysis
   b. Linear supply & demand functions; market price analysis
3. Scatter diagrams
   a. Linear vs. non-linear
   b. Linear regression/linear curve fitting
4. Solving systems of linear equations
   a. Graphically
   b. Substitution method
   c. Elimination method
   d. Using an augmented matrix
      i. REF with back-substitution
      ii. RREF
   e. Using an inverse matrix
   f. Applications problems
5. Matrix algebra
   a. Matrix addition/subtraction
   b. Scalar multiplication of matrices
   c. Matrix multiplication
   d. Finding the inverse of a matrix
   e. Find the transpose of a matrix
   f. Applications
6. Elementary Row Operations
   a. By hand for 2x3 matrices
   b. Using graphing calculator with matrix capabilities for larger matrices
7. Linear Programming
   a. Geometric approach
      i. Graphing system/finding feasible region
      ii. Optimizing the objective function over the feasible region
   b. Simplex Method & standard max problem
   c. Duality & standard min problem
   d. Non-standard and mixed constraint problems
   e. Applications
8. Review of exponential and logarithmic functions
9. Mathematics of Finance
   a. Simple & compound interest
   b. Ordinary annuities & sinking funds
   c. Amortization

Optional Topics:
   10. Logic
   11. Probability