# MATH 2050 (Linear Algebra I) — Winter 2018
## Course Outline

SECTION 1: VECTORS AND GEOMETRY (approx. 5 weeks)
- 1.1: Vectors
- 1.2: Length and Direction
- 1.3: Lines, Planes, Cross Product
- 1.4: Projections
- 1.5: Euclidean $n$-space

SECTION 2: MATRICES AND LINEAR EQUATIONS (approx. 4 weeks)
- 2.1: The Algebra of Matrices
- 2.2: The Inverse and Transpose of a Matrix
- 2.3: Systems of Linear Equations
- 2.4: Homogeneous Systems and Linear Independence
- 2.5: Finding the Inverse of a Matrix
- 2.6: The $LU$ Factorization of a Matrix[†]

SECTION 3: DETERMINANTS AND EIGENVALUES (approx. 3 weeks)
- 3.1: The Determinant of a Matrix
- 3.2: Properties of Determinants
- 3.3: Complex Numbers
- 3.4: The Eigenvalues and Eigenvectors of a Matrix
- 3.5: Similarity and Diagonalization

† This section will be covered only as time permits.