

- Functions of several variables and level curves (14.1)
- Partial derivative and tangent plane (14.3, 14.4)
- Chain Rules (14.5)
- Directional derivative and gradient (14.6)
- Tangent planes to level surfaces (14.6)
- Maximum and minimum values (14.7)
- Double integrals over rectangles (15.1)
- Iterated integrals (15.2)
- Double integrals over general regions (15.3)
- Double integrals in polar coordinates (15.4)
- Vector Fields (16.1)
- Line Integrals (16.2)
- Line integrals of vector fields and Work
- Fundamental theorem of Line Integrals (16.3)
- Conservative Vector Fields and Path Independence
- Green's Theorem (16.4)
- Curl and Divergence (16.5)

### **Linear Algebra:**

- Matrices and Systems of Linear Equations (1.1)
- Echelon form and Gauss-Jordan Elimination (1.2)
- Consistent Systems of Linear Equations (1.3)

- Matrix Operations (1.5)
- Algebraic Properties of Matrix Operations (1.6)
- Linear Independence and Nonsingular Matrices (1.7)
- Matrix Inverses and Their Properties (1.9)
- Vector Space Properties of  $\mathbb{R}^n$  (3.2).
- Examples of Subspaces (3.3)
- Bases for Subspaces (3.4)
- Dimension (3.5)
- Orthogonal Bases for Subspaces (3.6)
- The Eigenvalue Problem (4.1)
- Eigenvalues and Characteristic Polynomial (4.4)
- Eigenvectors and Eigenspaces (4.5)
- Similarity Transformation and Diagonalization ( 4.7)