



$$\int_M d\omega = \int_{\partial M} \omega$$

**Week 1: January 6-10**

- **Lecture 1** - Introduction, 1.1 (Systems of Linear Equations)
- **Lecture 2** - 1.2 (Gaussian Elimination)
- **Lecture 3** - 1.3 (Matrices and Matrix Operations)

**Week 2: January 13-17**

- **Lecture 4** - 1.3 (continued), 1.4 (Inverses, Properties of Matrices)
- **Lecture 5** - 1.4 (Inverses, Properties of Matrices, Continued)
- **Lecture 6** - 1.5 (Elementary Matrices)

**Week 3: January 20-24**

- **Lecture 7** - 1.5 (Continued), 1.6 (More on Linear Systems and Invertible Matrices)
- **Lecture 8** - 1.6 (Continued)
- **Lecture 9** - 1.7 (Diagonal, Triangular, and Symmetric Matrices)

**Week 4: January 27-31**

- **Lecture 10** - 2.1 (Determinants by Cofactor Expansion)
- **Lecture 11** - 2.2 (Evaluating Determinants by Row Reduction)
- **Lecture 12** - 2.3 (Properties of Determinants, Omit Cramer's Rule)

**Week 5: February 3-7**

- **Lecture 13** - 5.1 (Eigenvalues and Eigenvectors)
- **Lecture 14** - 5.1 (Continued)
- **Lecture 15** - 5.2 (Diagonalization)

**Week 6: February 10-14**

- **Lecture 16** - 5.2 (Continued)
- **Lecture 17** - 5.4 (Differential Equations)
- **Lecture 18** - 5.4 (Continued)

**Week 7: February 17-21 (Midterm Recess)**

**Week 8: February 24-28**

- **Lecture 19** - 10.1, 10.2 (from 9th Edition, Complex Numbers, Division of Complex Numbers)
- **Lecture 20** - 10.3 (from 9th Edition, Polar Form of a Complex Number)
- **Lecture 21** - 3.1 (Vectors in 2-space, 3-space, and  $n$ -space)

**Week 9: March 2-6**

- **Lecture 22** - 3.2 (Norm, Dot product, and Distance in  $R^n$ )

- **Lecture 23** - 3.3, 3.4 (Orthogonality, The Geometry of Linear Systems)
- **Lecture 24** - 3.4 (Continued), 3.5 (Cross Product)

#### **Week 10: March 9-13**

- **Lecture 25** - 4.1 (Real Vector Spaces)
- **Lecture 26** - 4.1 (Continued), 4.2 (Subspaces)
- **Lecture 27** - 4.2 (Continued)

#### **Week 11: March 16-20**

- **Lecture 28** - 4.3 (Linear Independence)
- **Lecture 29** - 4.3 (Continued), 4.4 (Coordinates and Basis)
- **Lecture 30** - 4.4 (Continued)

#### **Week 12: March 23-27**

- **Lecture 31** - 6.3 (Gram-Schmidt Process, Omit Example 9 and QR-Decomposition)
- **Lecture 32** - 6.3 (Continued), 4.5 (Dimension)
- **Lecture 33** - 4.5 (Continued), 4.7 (Row Space, Column Space, and Null Space)

#### **Week 13: March 30 - April 3**

- **Lecture 34** - 4.7 (Continued)
- **Lecture 35** - 10.14 Cryptography
- **Lecture 36** - 10.14 (Continued), Review

#### **Week 14: April 6-7**

- **Lecture 37** - Review

(Classes end on April 7th)