

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

**Week 1: January 11-15**

- **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 18-22**

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

**Week 3: January 25-29**

- **Lecture 7** - 1.6 (More on Linear Systems and Invertible Matrices)
- **Lecture 8** - 1.7 (Diagonal, Triangular, and Symmetric Matrices)
- **Lecture 9** - 2.1 (Determinants by Cofactor Expansion)

**Week 4: February 1-5**

- **Lecture 10** - 2.2 (Evaluating Determinants by Row Reduction)
- **Lecture 11** - 2.3 (Properties of Determinants, Omit Cramer's Rule)
- **Lecture 12** - 2.3 (Continued), 5.1 (Eigenvalues and Eigenvectors)

**Week 5: February 8-12**

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

**Week 6: February 15-19 (Midterm Recess)**

**Week 7: February 22-26**

- **Lecture 16** - 5.4 (Differential Equations)
- **Lecture 17** - 5.4 (Continued)
- **Lecture 18** - 10.1, 10.2 (from 9th Edition, Complex Numbers, Division of Complex Numbers)

**Week 8: March 1-5**

- **Lecture 19** - 10.3 (from 9th Edition, Polar Form of a Complex Number)
- **Lecture 20** - Review
- **Lecture 21** - 3.1 (Vectors in  $n$ -space), 3.2 (Norm, Dot product, and Distance in  $R^n$ )

**Week 9: March 8-12**

- **Lecture 22** - 3.3 (Orthogonality), 3.4 (The Geometry of Linear Systems)

- **Lecture 23** - 3.5 (Cross Product)
- **Lecture 24** - 4.1 (Real Vector Spaces)

### **Week 10: March 15-19**

- **Lecture 25** - 4.2 (Subspaces)
- **Lecture 26** - 4.3 (Spanning Sets, Still 4.2 in 11th Edition)
- **Lecture 27** - 4.4 (Linear Independence, 4.3 in 11th Edition)

### **Week 11: March 22-26**

- **Lecture 28** - 4.4 (Continued), 4.5 (Coordinates and Basis, 4.4 in 11th Edition)
- **Lecture 29** - 4.5 (Continued)
- **Lecture 30** - Review

### **Week 12: March 29 - April 2**

- **Lecture 31** - 6.3 (Gram-Schmidt Process, Omit Example 9 and QR-Decomposition)
- **Lecture 32** - 6.3 (Continued), 4.6 (Dimension, 4.5 in 11th Edition)
- **Lecture 33** - 4.6 (Continued), 4.8 (Row Space, Column Space, and Null Space, 4.7 in 11th Edition)

### **Week 13: April 5-9**

- **Lecture 34** - 4.8 (Continued)
- **Lecture 35** - 10.13 (Cryptography, 10.14 in 11th Edition)
- **Lecture 36** - 10.13 (Continued), Review

### **Week 14: April 12-14**

- **Lecture 37** - Review
- **Lecture 38** - Review

(Clases end on April 14th)