

## Lecture 2: Matrices (sections 2.1 to 2.3)

- Numeric vectors
- Matrices
- Matrix operations

## Lecture 3: Determinants and Matrix Inversion (sections 2.4 to 2.5)

- Introduction
- Adjugate Matrix
- Determinants
- Invertible Matrices

## Lecture 4: Linear Dependency and Rank (sections 2.4.1 & 2.7)

- Linear dependency
- Rank of a matrix

## Lecture 5: Systems of Linear Equations (sections 3.1 to 3.3)

- Definition of a System of Linear Equations
- Cramer's Method
- Rouché-Capelli Theorem
- Gaussian Elimination
- Summary of Methods

## Lecture 6: Vector Spaces (sections 8.1 to 8.5)

- Vector Spaces
- Linear Dependence
- Linear Span
- Basis of a Vector Space
- Dimension of a Vector Space

## Lecture 7: Linear Mappings (sections 10.1 to 10.3)

- Mappings
- Linear Mappings
- Linear Mappings and Vector Spaces
- Endomorphisms and Kernel
- Rank and Nullity of Linear Mappings

## Lecture 8: Geometric Mappings and Eigenvalues (sections 10.4 and 10.5)

- Matrix Representation of Linear Mapping
- Geometric Mappings
- Eigenvalues and Eigenvectors
- Eigenspaces
- Determining Eigenvalues and Eigenvectors