

# COURSEWARE

**COURSE TITLE:** Linear Algebra I

**COURSE CODE:** MTH 203

**SEMESTER:** First

**COURSE LECTURER:** Mr. Ikechukwu Otaide

**COURSE Objectives:** At the end of this course students should be able to do the following.

- Define a vector space over the real field  $K$
- Define Subspaces, Linear dependence (independence), basis and dimension
- Understand the concept of linear transformations and their representations
- Understand the concept of Singular (non-singular) transformations and Algebra of Matrices

**COURSE OUTLINE:** Vector Space over the Real Field  $K$  . Subspaces, Linear dependence (independence), basis and dimension

Linear transformations and their representation by matrices - range, null space, rank.

Singular (non-singular) transformations and Algebra of Matrices.

**LECTURE ARRANGEMENT:** 3Hours/Week

**MODE OF ASSESSMENT:** Assignment, Test and Examination.

**CLASS ETHICS:** Punctuality to Lectures and Attentiveness during Lectures.

**REFERENCE MATERIALS:**

- Linear Algebra by Jim Hefferon
- A first course in Linear Algebra by Robert A. Beezer
- Schaum's Outlines Linear Algebra by Seymour Lipschutz and Marc Lars Lipson
- Linear Algebra by David Cherney, Tom Denton, Rohit Thomas and Andrew Waldron
- Fundamentals of Linear Algebra by James B. Carrell

# COURSEWARE

**COURSE TITLE:** Linear Algebra II

**COURSE CODE:** MTH 204

**SEMESTER:** Second

**COURSE LECTURER:** Mr. Ikechukwu Otaide

**COURSE Objectives:** At the end of this course students should be able to do the following.

- Solve systems of Linear equations
- Solve problems on Eigenvalues and Eigenvectors
- Understand the concept of Minimum and Characteristic polynomials of Linear transformations
- Understand the Caley-Hamilton theorem, Bilinear and quadratic forms, Canonical forms

**COURSE OUTLINE:** Systems of linear equations, Change of Basis, equivalence and Similarity.

Eigenvalues and Eigenvectors, Characteristic polynomials of a linear transformation.

Caley-Hamilton theorem, Bilinear and quadratic forms, Canonical forms.

**LECTURE ARRANGEMENT:** 3Hours/Week

**MODE OF ASSESSMENT:** Assignment, Test and Examination.

**CLASS ETHICS:** Punctuality to Lectures and Attentiveness during Lectures.

**REFERENCE MATERIALS:**

- Linear Algebra by Jim Hefferon
- A first course in Linear Algebra by Robert A. Beezer
- Schaum's Outlines Linear Algebra by Seymor Lipschutz and Marc Lars Lipson
- Linear Algebra by David Cherney, Tom Denton, Rohit Thomas and Andrew Waldron
- Fundamentals of Linear Algebra by James B. Carrell

# **COURSEWARE**

**COURSE TITLE: Business Statistic I**

**COURSE CODE: BUS 217**

**SEMESTER: First**

**COURSE LECTURER: Mr. Ikechukwu Otaide**

**COURSE Objectives: At the end of this course students should be able to do the following.**

**• Understand the Nature of Statistics, Statistical inquiries, forms and design.**

**• Understand the Role of Statistics, Basic Concepts in Statistics, Sources of data and their**

**Methods of collection.**

**• Present Statistical data, Measure Central tendency and dispersion.**

**• Find the Moments, Skewness and Kurtosis of a distribution.**

**COURSE OUTLINE: Nature of Statistics, Statistical inquiries, forms and design.**

**Role of Statistics, Basic Concepts in Statistics, Sources of data and their Methods of collection.**

**Presentation of Statistical data, Measure of Central tendency and dispersion.**

**Moments, Skewness and Kurtosis of a distribution.**

**LECTURE ARRANGEMENT: 3Hours/Week**

**MODE OF ASSESSMENT: Assignment, Test and Examination.**

**CLASS ETHICS: Punctuality to Lectures and Attentiveness during Lectures.**

**REFERENCE MATERIALS:**

**• Beginning Statistics by Douglas S. Shafer and Zhiyi Zhang**

**• Applied Statistics by Mohammed A. Shayib**

**• Schaum's Outlines on Statistics by Murray R. Spiegel and Larry**

**J. Stephens**

**• Essentials of Statistics by David Brink.**

# **COURSEWARE**

**COURSE TITLE: Business Statistic II**

**COURSE CODE: BUS 226**

**SEMESTER: Second**

**COURSE LECTURER: Mr. Ikechukwu Otaide**

**COURSE Objectives: At the end of this course students should be able to do the following.**

- Understand Elementary probability distribution
- Understand Elementary Sampling theory, Estimation theory, Student's distribution
- Solve problems on Statistical decision theory, Test for small and large Samples
- Solve problems involving Chi-square distribution and test of goodness of fit
- Linear regression, Correlation theory and Time Series.

**COURSE OUTLINE: Elementary probability distribution**

**Elementary Sampling theory, Estimation theory, Student's distribution.**

**Statistical decision theory, Test for small and large Samples, Chi-square distribution and test of goodness of fit**

**Linear regression, Correlation theory and Time Series.**

**LECTURE ARRANGEMENT: 3Hours/Week**

**MODE OF ASSESSMENT: Assignment, Test and Examination.**

**CLASS ETHICS: Punctuality to Lectures and Attentiveness during Lectures.**

**REFERENCE MATERIALS:**

- Beginning Statistics by Douglas S. Shafer and Zhiyi Zhang

**J. Stephens**

- **Applied Statistics by Mohammed A. Shayib**
- **Schaum's Outlines on Statistics by Murray R. Spiegel and Larry**
- **Essentials of Statistics by David Brink.**

## **COURSEWARE**

**COURSE TITLE: Introduction to Numerical Analysis**

**COURSE CODE: MTH 207**

**SEMESTER: First**

**COURSE LECTURER: Mr. Ikechukwu Otaide**

**COURSE Objectives: At the end of this course students should be able to do the following.**

- **Solve problems on Algebraic and transcendental equations**
- **Find zeros of non-linear equations**
- **Solve problems on Numerical differentiation and Numerical**
- **Solve problems involving Ordinary differential equations with Initial**

**Integration**

**Value Problems.**

**COURSE OUTLINE: Algebraic and transcendental equations**

**Zeros of non-linear equations.**

**Numerical differentiation and Numerical Integration**

**Ordinary differential equations with Initial Value Problems.**

**LECTURE ARRANGEMENT: 3Hours/Week**

**MODE OF ASSESSMENT: Assignment, Test and Examination.**

**CLASS ETHICS: Punctuality to Lectures and Attentiveness during Lectures.**

**REFERENCE MATERIALS:**

- **Introduction to Numerical Analysis by Doron Levy**
- **Introduction to Numerical Analysis by Arnold Neumaier**

**Epperson**  
**Education).**

- **An Introduction to Numerical methods and Analysis by James F.**
- **Numerical Methods; University of CALICUT (School of distance**