

# KARACHI UNIVERSITY BUSINESS SCHOOL

## UNIVERSITY OF KARACHI

BBA – III (Hons.)	
Course Title	: BUSINESS STATISTICS
Course Number	: BA (H) – 451
Credit Hours	: 03

### Objective

After studying this course the student will know how to collect the data, its nature, its average value and variation in it. The student will be able to compare the variability of two or more heterogeneous groups. The student can compare the prices, quantities and values etc. of a group of related articles at one date with those of the same group of related articles at different date. The student will be able to evaluate the amount of relationship between two or more linearly related variables. In addition to this the student will be able to predict the expected production, demand, consumption etc.

### Course Contents

#### **1. Defining the Role of Statistics in Business**

- 1.1 Definition of ‘Statistics’ (Singular Sense and Plural Sense)
- 1.2 Application of Statistics in Business
- 1.3 Four Basic Activities of Statistics
- 1.4 Probability – Definition and Difference between Probability and Statistics

#### **2. Classification and Tabulation of Data**

- 2.1 Univariate, Bivariate, Multivariate
- 2.2 Quantitative and Qualitative Data
- 2.3 Tabulation of Discrete Data
- 2.4 Tabulation of Continuous Data
- 2.5 Concept of Mid Point
- 2.6 Concept of Cumulative Frequencies
- 2.7 Concept of Relative Frequency

#### **3. Graphical Representation of Data**

- 3.1 Preparation of Histogram
- 3.2 Frequency Curve

- 3.2 Frequency Polygon
- 3.3 Cumulative Frequency Curve or Ogive

#### **4. Representation of Data Through Diagrams**

- 4.1 Bar diagram and Multiple Bar Diagram
- 4.2 Rectangles and Subdivided Rectangles
- 4.3 Pie Diagram or Sector Diagram

#### **5. Central Tendency of Data and Its Central Value or Average Value**

- 5.1 Measure of Average Value A.M, G.M, H.M, Median and Mode
- 5.2 Relationship between A.M, G.M and H.M
- 5.3 Relationship between Mean, Median and Mode
- 5.4 Properties of A.M
- 5.5 Effect of Change of Origin and Scale on A.M
- 5.6 Selection of Proper Measure of Average in Various Situations
- 5.7 Exploratory Data Analysis Tools : Stem-and-Leaf Plot, Box-and-Whisper Plot

#### **6. Quartiles**

- 6.1 Quartiles for Ungrouped and Grouped Data
- 6.2 Deciles for Grouped Data
- 6.3 Percentiles for Grouped Data and Its Application

#### **7. Dispersion**

- 7.1 Absolute Measures
- 7.2 Relative Measures and Its Application

#### **8. Concepts of Symmetry and Peakness**

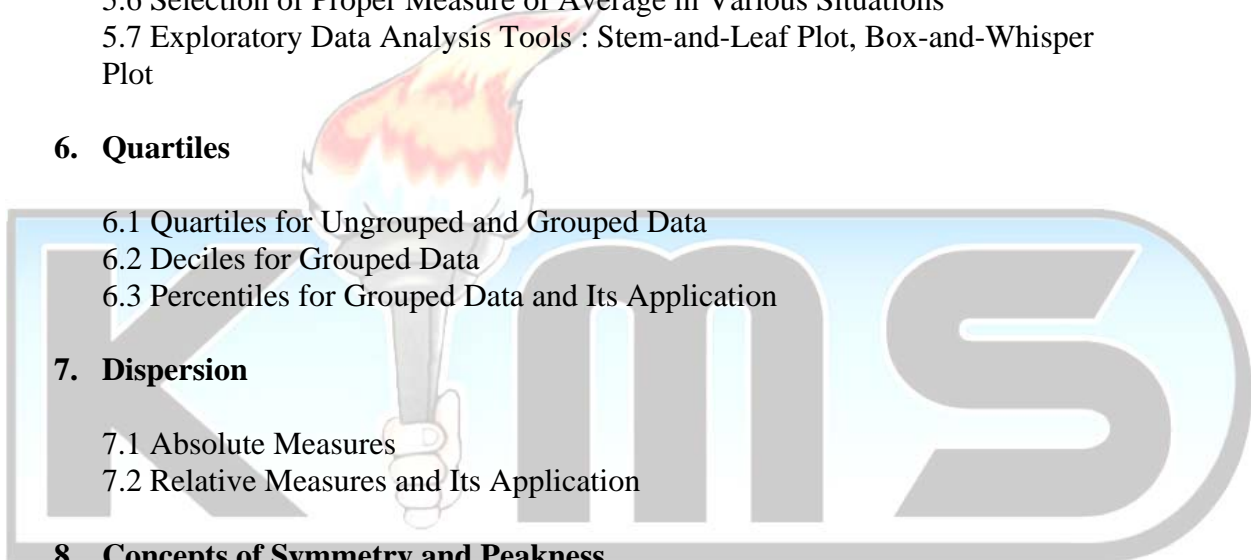
- 8.1 Measures of Skewness
- 8.2 Measures of Kurtosis

#### **9. Counting Techniques**

- 9.1 Permutation
- 9.2 Combination
- 9.3 Problems on Permutation and Combination

#### **10. Probability as a Numerical Measure of Uncertainty**

- 10.1 Application of Addition Laws of Probability for Mutually Exclusive Events as well as for Not Mutually Exclusive Events, Its Application



10.2 Application of Multiplicative Laws of Probability for Dependent Events and as well as for Independent Events, Its Application

10.3 Probability Tree, Venn Diagram, Joint Probability Table

## **11. Difference Between a Variable and a Random Variable**

11.1 Mathematical Expectation of a Random Variable

11.2 Conversion of Frequency Distribution into Probability Distribution (Discrete and Continuous)

11.3 Finding Means, Variance, Standard Deviation and Co-efficient of Variation of Probability Distribution. Discrete Probability Distribution such as Binomial, Poisson Distributions, Properties and Application in Solving of Business Problems

11.4 Normal Distribution

## **12. Concepts of Regression and Correlation Between Two Linearly Related Variables and Their Applications**

12.1 Simple Regression Equations between Two Linearly Related Variables X and Y

12.2 Scatter Diagram and Fitting of Straight Line by Principle of Least Squares

## **13. Index Number and Its Types**

13.1 Weighted Index Number (Laspeyre's Paache's and Fisher Ideal)

13.2 Measure of Consistency

13.3 Consumer Price Index Number and Its Methods of Construction

13.4 Uses of Index Number

### **Recommended Books**

1. Freund John E., Mathematical Statistics with Applications, Prentice Hall, (7th Edition), October 2003.
  2. Spiegel Murray R., Schaum's Outline of Probability and Statistics, McGraw Hill Publishers, (2<sup>nd</sup> Edition), March 2000.
- Weiss Neil A., Introductory Statistics, Addison—Wesley Publishing Co. (7<sup>th</sup> Edition June, 2004)