

BUSINESS STATISTICS

Course Description

This course introduces statistics as a science of data. In this era of rapid advancements and information age; extracting useful knowledge from big data is a challenge. This course focus on the basics of statistics that can be described as the techniques of collecting, clarifying, summarizing, organizing, analyzing and interpreting the numerical information. This course starts with an overview of statistics and its importance. This course describes methods of the descriptive statistics and introduces graphical methods for the data. You will also learn about combinatorial probability and random distributions which later serves as the foundation for statistical inference. For more on statistical inference, this course will also focus on both estimation and hypothesis testing.

Course Objectives

Objective of this course is to equip graduate business student about statistical concepts which include measurements of location and dispersion, probability, probability distributions, sampling, estimation, and hypothesis testing for business forecasting. The course will help students to:

1. Present and describe information using a range of numerical and graphical procedures.
2. Understand statistical inference to use sample information and reach the possible conclusion about population values.
3. Using knowledge of probability theory and probability distributions undertake estimation and hypothesis testing.

4. Course Learning Outcomes

5. On completion of this course the student can perform following:

1. How to calculate and apply measures of location and measures of dispersion for grouped and ungrouped data cases.
2. How to apply discrete and continuous probability distributions to various business problems.
3. Perform Hypothesis Test and calculate confidence interval for a population parameter and understand about p-values.
4. Apply statistical methods to other disciplines such as economics, accounting,

finance and marketing.

5. Critically analyze statistical findings published by the media, research agencies and the Government to validate and verify its accuracy.
6. Undertake independent statistical analysis to make informed decisions.
7. Communicate statistical findings and results in an unbiased manner to a non-technical audience such as decision makers, stakeholders and the general public.

8. Textbook

- Basic Statistics for Business & Economics 5th Edition by Douglas A Lind, William G Marchal, Samuel A Wathen, Published by: McGraw Hill Inc.

Week No.	Topic
1	Introduction ▪ Define inferential and descriptive statistics. ▪ Differentiate between a quantitative and a qualitative variable. ▪ Four levels of measurement: - nominal, ordinal, interval, and ratio.
2	Presentation of Data ▪ Construct a frequency distribution. ▪ Determine the class midpoints, relative frequencies, and cumulative frequencies of a frequency distribution. ▪ Construct a Histogram, a Frequency Polygon and a Pie Chart.
3	Descriptive Statistics (Numerical Methods) Measures of Central Tendency ▪ Mean, Median, Mode ▪ Merits and Demerits of Central Tendencies Measures of Dispersions ▪ Range ▪ Mean Deviation ▪ Variance ▪ Standard Deviation
4	Central Tendencies for Grouped Data ▪ Dot Plots ▪ Quartiles, Deciles, and Percentiles ▪ Inter quartile Range

	▪ Box Plots ▪ Skewness
5	Inferential Statistics Probability ▪ Introduction ▪ Approaches to Assigning Probabilities ▪ Rules for computing Probabilities ▪ Random Experiment
6	Probability ▪ Contingency Tables ▪ Tree Diagram ▪ Principles of Counting
7	Probability Distribution ▪ Random variables ▪ Discrete Random Variables ▪ Continuous Random Variables ▪ Mean, Variance and Standard Deviation of Probability Distribution
8	Probability Distribution ▪ Mean, Variance and Standard Deviation of Probability Distribution Discrete Probability Distributions ▪ Binomial Probability Distribution
9	Mid Semester Exam
10	Discrete Probability Distributions ▪ Poisson Probability Distribution
11	Continuous Probability Distributions ▪ Uniform Probability Distribution ▪ Normal Probability Distribution
12	Sampling and Sampling Distributions ▪ Sampling Methods ▪ Sampling Error ▪ Sampling Distribution ▪ Central Limit Theorem
13	Estimation and Confidence Intervals ▪ Define point estimate and level of confidence.

	▪ Confidence interval for the population mean when the population standard deviation is known.
14	Simple Linear Regression
15	Multiple Regression
16	Hypothesis Testing
17	Buffer Week
18	Final Term Exam