FAR WESTERN UNIVERSITY

Faculty of Management

Course Title: **Business Statistics II** | Total Marks: 100

Course Code: **MGT 341** | Pass Marks: 45

Nature of course: Theory | Time per period: 1 hr.

Semester: Fourth | Total periods: 45

Level: BBA | Credit hours: 3

Unit objectives	Learning Units: Main text
This unit will help you learn: ➢ To construct and interpret confidence interval estimates for the mean and proportion ➢ How to determine the sample size necessary to develop a confidence interval of mean or proportion ➢ How to use confidence estimates in auditing Practical: Excel companion to ch-8.	**Unit-1: Confidence Interval Estimation (8)** 8.1Confidence interval estimation for the mean (σ known) 8.2 Confidence interval estimation for the mean (σ Unknown) 8.2.1 Student's t distribution 8.2.2 Properties of the t Distribution 8.2.3 The concept of the degree of freedom 8.2.4 The confidence interval statements 8.3 Confidence Interval estimation for proportion 8.4 Determining sample size 8.4.1 sample size determination for the mean 8.4.2 sample size determination for the proportion 8.5 Applications of confidence interval estimation in auditing 8.5.1 estimating the population total amount 8.5.2 difference estimation 8.5.3 one-sided confidence interval estimation of the rate of non noncompliance with internal controls
This unit will help you learn: ➢ The basic principles of hypothesis testing ➢ How to use hypothesis testing to test a mean or proportion ➢ The assumptions of each hypothesis testing procedure, how to evaluate them, and the consequences if they are seriously violated	**Unit-2: Fundamentals of hypothesis testing: one sample tests (8)** 9.1 Hypothesis testing methodology 9.1.1 The null and alternative hypothesis 9.1.2 The critical value of the test statistic 9.1.3 Regions of rejection and non rejection 9.1.4 Risks of decision making using hypothesis testing 9.2 Z test of hypothesis for the mean(σ known) 9.2.1 The critical value approach to hypothesis testing

Practical: Excel Companion to Ch-9.	9.2.2 The p-value approach to hypothesis testing 9.2.3 The connection between confidence interval estimation and hypothesis testing 9.3 One tail tests 9.3.1 The critical value approach 9.3.2 The p-value approach 9.4 t- test of hypothesis for the mean(σ unknown) 9.4.1 The critical value approach 9.4.2 The p-value approach 9.5 Z test of hypothesis for the proportion 9.5.1 The critical value approach 9.5.2 The p-value approach
This unit will help you learn how to use hypothesis testing for comparing the difference between: ➢ The means of two independent populations ➢ The means of two related populations ➢ Two proportions Practical: Excel Companion to Ch-10.	**Unit-3: Two sample tests(6)** 10.1 comparing the means of two independent populations 10.1.1 Z-test for the difference between two means 10.1.2 Pooled variance t test for the difference between two means 10.1.3 Confidence interval estimate for the difference between two means 10.1.4 Separate variance t test for the difference between two means 10.2 Comparing the means of two related populations 10.2.1 Paired t tests 10.2.2 Confidence interval estimate for the mean difference 10.3 Comparing two population proportions 10.3.1 Z test for the difference between two proportions 10.3.2 Confidence interval estimates for the difference between two proportions
This unit will help you learn: ➢ How and when to use the chi-square test for contingency tables ➢ How to use the marascuilo procedure for determining pairwise differences when evaluating more than two proportions ➢ How and when to use the McNemar test ➢ How and when to use nonparametric tests Practical: Excel Companion to Ch-12.	**Unit-5: Chi- Square tests and nonparametric tests(8)** 12.1 Chi square test for the difference between two proportions(Independent samples) 12.2 Chi square test for differences among more than two proportions 12.2.1 The Marascuilo procedure 12.3 Chi square test of independence 12.4 McNemar test for the difference between two proportions(related samples) 12.5 Wilcoxon rank sum test: Nonparametric analysis for two independent populations 12.6 Kruskal-wallis rank test: Nonparametric test for one way anova

This unit will help you learn:	**Unit-6: Simple linear regression(8)**
➢ To use regression analysis to predict the value of a dependent variable based on an independent variable ➢ The meaning of regression coefficients ➢ To evaluate the assumptions of regression analysis and know what to do if assumptions are violated ➢ To make inferences about the slope and correlation coefficient ➢ To estimate mean values and predict individual values Practical: Excel Companion to Ch-13.	13.1 Types of regression models 13.2 determining the simple linear regression equation 13.2.1 The least square method 13.2.2 Visual exploration: exploring simple linear regression coefficients 13.2.3 Predictions in regression analysis: interpolation versus extrapolation 13.2.4 Computing the regression coefficients 13.3 measures of variations 13.3.1Computing the sum of squares 13.3.2 The coefficient of determination 13.3.3 Standard error of the estimate 13.4 Assumptions 13.5 Residual analysis: Evaluating the assumptions 13.7 Inferences about the slope and correlation coefficient 13.7.1 t test for the slope 13.7.2 F test for the slope 13.7.3 confidence interval estimate of the slope 13.7.4 t test for the correlation coefficient

Main Text:	Levine, Stephan, Krehbiel and Berenson (2008), ***Statistics for Managers*** *using Microsoft excel,* 5th Edition, New Delhi: Prentice Hall of India.
Main Reference:	Douglas A Lind, William G Marchal, Samuel A Wathen(2008), ***Statistical Techniques in Business and Economics***, 13th edition, Tata McGraw-Hill India.