

UNIVERSITY OF JORDAN

Faculty of Science

Department of Mathematics

COURSE DESCRIPTION

Statistical Techniques MATH 332

Spring 2018 /2019

Instructor: Prof. Mohammad Al-Raqab

Office Hours: Sunday, Tuesday, 12:00 – 1:00 p.m. or by appointments.

Text book: *Introduction to Probability & Statistics*, 14th Edition, W. Mendenhall, R. Beaver and B. Beaver, 2012, Cengage Learning, USA.

Recommended References:

- *Introduction to Probability and Statistics: Principles and Methods*, 7th Edition, R. A. Johnson and G. K. Bhattacharyya, 2014, Wiley, USA.
- *Principles of Statistics*, 4th Edition, M.Z. Raqab, A.M., Awad, and M.H. Azzam, Academic for Publishing and Distributing Co., Jordan.

Prerequisite: STAT 131

Description: This course is aimed at enabling students to analyze data and interpret the results of the analysis and enabling students to use the computer technology to remove the tedium of calculating statistics. It includes correlation and regression analysis, analysis of variance, chi-square tests and nonparametric statistics. A variety of examples and exercises will be used to illustrate these techniques.

Lecture Schedule (Tentative):

- 1- Review: Review of inferences about means, proportions and variances (6 hours).
- 2- Linear Regression Analysis: Simple linear regression, method of least-squares of the model parameters, inferences and correlation analysis (9 hours; Ch.12).
- 3- Multiple Regression Analysis: Multiple regression model, lack-of-fit test, testing of regression model, coefficient of determination, quadratic regression, checking the regression assumption (6 hours; Ch.13).
- 4- Analysis of Variance: Design of an experiment, completely randomized design (CRD) (One-Way Anova), Randomized Block design (Two-Way Anova), ANOVA table, Multiple comparisons, The factorial designs (9 hours; Ch.11).
- 5- Analysis of Categorized Data: Multinomial model, Pearson's chi-square statistic, goodness-of-fit- test, contingency tables, test of independence, test of homogeneity. (4 hours; Ch.14).
- 6- Nonparametric Statistics: Wilcoxon rank sum test, sign test, Wilcoxon signed-rank test, Kruskal-Wallis test, rank correlation coefficient, Normal approximations. (10 hours; Ch.15).

Grading Policy: The final grade will be calculated as follows:

- 30% First Exam, TBA.
- 30% Second Exam, TBA
- 40% Final Exam, TBA