Department of Statistics & Operation Research-King Saud University

Second Semester 1440/1441

Nonparametric Statistics Methods

(STAT 333)

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COURSE SYLLABUS

Week	Title
Week 1	**Part I:** Introduction, Review of Some Parametric Tests **Part II:** The Nonparametric Statistical Procedures, State the Null and Research Hypotheses, Set the Level of Risk (or the Level of Significance) Associated with the Null Hypothesis, Choose the Appropriate Test Statistic, Compute the Test Statistic, Determine the Value Needed for Rejection of the Null Hypothesis Using the Appropriate Table of Critical Values for the Particular Statistic, Compare the Obtained Value with the Critical Value, Interpret the Results, Reporting the Results, Ranking Data, Ranking Data with Tied Values, Counts of Observations, Practice Questions, Solutions to Practice Questions.
Week 2	**Part I:** Describing Data and the Normal Distribution, Computing and Testing Kurtosis and Skewness for Sample Normality, Sample Problem for Examining Kurtosis **Part II:** Sample Problem for Examining Skewness, Examining Skewness and Kurtosis for Normality Using SPSS.
Week 3	**Part I:** Computing the Kolmogorov–Smirnov One-Sample Test, Sample Kolmogorov–Smirnov One-Sample Test, **Part II:** Performing the Kolmogorov–Smirnov One-Sample Test Using SPSS, Practice Questions, and Solutions to Practice Questions.
Week 4	**Part I:** Computing the Wilcoxon Signed Rank Test Statistic, Sample Wilcoxon Signed Rank Test (Small Data Sam **Part II:** Confidence Interval for the Wilcoxon Signed Rank Test, Sample Wilcoxon Signed Rank Test (SPSS).
Week 5	**Part I:** Computing the Sign Test, Sample Sign Test (Small Data Samples). **Part II:** Performing the Wilcoxon Signed Rank Test and the Sign Test Using SPSS, Interpret the Results from the S Output Window, Practice Questions, Solutions to Practice Questions.
Week 6	**Part I:** Computing the Mann−Whitney U-Test Statistic, Sample Mann−Whitney U-Test (Small Data Samples), **Part II:** Sample Mann−Whitney U-Test (SPSS), Computing the Kolmogorov–Smirnov Two-Sample Test Statistic, Sample Kolmogorov–Smirnov Two-Sample Test.
Week 7	**Part I:** Performing the Mann–Whitney U-Test and the Kolmogorov–Smirnov Two-Sample Test Using SPSS, **Part II:** Interpret the Results from the SPSS Output Window, Practice Questions, Solutions to Practice Questions.
The First Term Exam 11/3/2020 03:00 – 04:30 pm	
Week 8	**Part I:** Computing the Friedman Test Statistic, Sample Friedman's Test (Small Data Samples without Ties) **Part II:** Sample Friedman's Test (Small Data Samples with Ties),
Week 9	**Part I:** Performing the Friedman Test Using SPSS, Sample Friedman's Test (SPSS), **Part II:** Practice Questions, Solutions to Practice Questions.
Week 10	Part I: Computing the Kruskal–Wallis H-Test Statistic Part II: Sample Kruskal–Wallis H-Test (Small Data Samples).
Week 11	**Part I:** Performing the Kruskal–Wallis H-Test Using SPSS, Sample Kruskal–Wallis H-Test (SPSS), **Part II:** Practice Questions, Solutions to Practice Questions.

Week 12	**Part I:** The χ2 Goodness-of-Fit Test, Computing the χ2 Goodness-of-Fit Test Statistic, Sample χ2 Goodness-of-Fit Test (Category Frequencies Equal), **Part II:** Sample χ2 Goodness-of-Fit Test (Category Frequencies Not Equal), Performing the χ2 Goodness-of-Fit Test Using SPSS.
The Second Term Exam 8/4/2020 03:00 – 04:30 pm	
Week 13	**Part I:** The χ^2 Test for Independence, Computing the χ^2 Test for Independence, **Part II:** Sample χ^2 Test for Independence, Performing the χ^2 Test for Independence Using SPSS.
Week 14	**Part I:** The Fisher Exact Test, Computing the Fisher Exact Test for 2 × 2 Tables, **Part I:** Sample Fisher Exact Test, Performing the Fisher Exact Test Using SPSS, Practice Questions, Solutions to Practice Questions.
Week 15	**Part I:** The Runs Test for Randomness, Sample Runs Test (Small Data Samples), Performing the Runs Test Using SPSS, **Part II:** Sample Runs Test (Large Data Samples), Sample Runs Test Referencing a Custom Value, Performing the Runs Test for a Custom Value Using SPSS, Practice Questions, Solutions to Practice Questions.
Course Delivery:	There are two lectures per week.
Text Book	Practical Nonparametric Statistics. W. J. Conver, Wile, 1980.

Grading:

Participation, Quizzes & Home works 10%

Midterm I 25%

Midterm II 25%

Final Exam 40%

Homework and exam policy

Collaboration on homework assignments is encouraged. You may consult outside reference materials, other students, the instructor, or anyone else. There is one restriction: you must write, type, or otherwise record your answers yourself, alone, so that your homework reflects your understanding. No late homework or make-up exams without prior approval; penalties may apply.