

Department of Statistics & Operation Research-King Saud University

Second Semester 1442/1443

Nonparametric Statistics Methods

(STAT 333)

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COURSE SYLLABUS

Week	Title
Week 1	<p>Part I: Introduction, Review of Some Parametric Tests</p> <p>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.</p>
Week 2	<p>Part I: Describing Data and the Normal Distribution, Computing and Testing Kurtosis and Skewness for Sample Normality, Sample Problem for Examining Kurtosis</p> <p>Part II: Sample Problem for Examining Skewness, Examining Skewness and Kurtosis for Normality Using SPSS.</p>
Week 3	<p>Part I: Computing the Kolmogorov–Smirnov One-Sample Test, Sample Kolmogorov–Smirnov One-Sample Test,</p> <p>Part II: Performing the Kolmogorov–Smirnov One-Sample Test Using SPSS, Practice Questions, and Solutions to Practice Questions.</p>
Week 4	<p>Part I: Computing the Wilcoxon Signed Rank Test Statistic, Sample Wilcoxon Signed Rank Test (Small Data Samples)</p> <p>Part II: Confidence Interval for the Wilcoxon Signed Rank Test, Sample Wilcoxon Signed Rank Test (SPSS).</p>
Week 5	<p>Part I: Computing the Sign Test, Sample Sign Test (Small Data Samples).</p> <p>Part II: Performing the Wilcoxon Signed Rank Test and the Sign Test Using SPSS, Interpret the Results from the SPSS Output Window, Practice Questions, Solutions to Practice Questions.</p>
Week 6	<p>Part I: Computing the Mann–Whitney U-Test Statistic, Sample Mann–Whitney U-Test (Small Data Samples),</p> <p>Part II: Sample Mann–Whitney U-Test (SPSS), Computing the Kolmogorov–Smirnov Two-Sample Test Statistic, Sample Kolmogorov–Smirnov Two-Sample Test.</p>
Week 7	<p>Part I: Performing the Mann–Whitney U-Test and the Kolmogorov–Smirnov Two-Sample Test Using SPSS,</p> <p>Part II: Interpret the Results from the SPSS Output Window, Practice Questions, Solutions to Practice Questions.</p>
Week 8	<p>Part I: Computing the Friedman Test Statistic, Sample Friedman’s Test (Small Data Samples without Ties)</p> <p>Part II: Sample Friedman’s Test (Small Data Samples with Ties),</p>
Week 9	<p>Part I: Performing the Friedman Test Using SPSS, Sample Friedman’s Test (SPSS), Part II: Practice Questions, Solutions to Practice Questions.</p>
Week 10	<p>Part I: Computing the Kruskal–Wallis H-Test Statistic</p> <p>Part II: Sample Kruskal–Wallis H-Test (Small Data Samples).</p>
Week 11	<p>Part I: Performing the Kruskal–Wallis H-Test Using SPSS, Sample Kruskal–Wallis H-Test (SPSS), Part II: Practice Questions, Solutions to Practice Questions.</p>
Week 12	<p>Part I: The χ^2 Goodness-of-Fit Test, Computing the χ^2 Goodness-of-Fit Test Statistic, Sample χ^2 Goodness-of-Fit Test (Category Frequencies Equal),</p> <p>Part II: Sample χ^2 Goodness-of-Fit Test (Category Frequencies Not Equal), Performing the χ^2 Goodness-of-Fit Test Using SPSS.</p>

Week 13	Part I: The χ^2 TestforIndependence, Computing the χ^2 TestforIndependence, Part II: Sample χ^2 TestforIndependence, Performing the χ^2 Test for Independence UsingSPSS.
Week 14	Part I: The FisherExact Test, Computing the Fisher Exact Test for 2 \times 2Tables, Part I: Sample FisherExact Test, Performing the Fisher Exact TestUsingSPSS, Practice Questions, Solutions toPracticeQuestions.
Week 15	Part I: The Runs TestforRandomness, Sample Runs Test (SmallDataSamples), Performing the Runs TestUsingSPSS, Part II: Sample Runs Test (LargeDataSamples), Sample Runs Test Referencing aCustomValue, 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	NONPARAMETRIC STATISTICS A Step-by-Step Approach SECOND EDITION GREGORY W. CORDER DALE I. FOREMAN

Grading:

<u>Quizzes- Home Works-Projects</u>	10%
<u>Midterm 1 -in the Lab.</u>	25%
<u>Midterm 2 -in the Lab.</u>	25%
<u>Final Exam-in the Lab.</u>	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.