

Dr Hasan Murad School of Management (HSM)

**Course Title:** Statistical Analysis for Management Research

**Course Code:** QM-610

**Resource Person:**

**Department:** Department of Economics and Statistics

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| **Week** | **Topics to be**  **covered in the course** | **Learning Objective of this topic** | **Expected Outcomes from Students** | **Assessment Criteria** | **Deadlines and Homework** |
|  | **Data Collection & Introduction to SPSS** |  |  |  |  |
| 1 | 1. Data & its types, Data Measurement, Scales of measurements, Data Collection, Methods, Survey &Design of Sampling, Identification of sampling Procedures. 2. Creating a variable Creating coding variables, Types of variables, Entering data in the data view, Dealing with missing values, Determining outliers, Reverse scoring of questionnaire items using SPSS | To learn the importance of data in real life, how to transform data into information, the role of Research in different disciplines like Businesses and corporate world, To learn primary data collection techniques and Ethics of data handling. | Students will understand some basic background of data and its Methodology and its implementation in applied sciences while dealing with raw data, to understand ethical responsibility of using data in statistical domains using SPSS | Assignment # 1 | Within a week |

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| 2-3 | **Describing the Data: One Variable Case**  Frequency Distributions, computing Mean, Standard Deviation, Range, Frequency, and Percentages using SPSS; Displaying Demographic Characteristics into table as per guidelines of APA 6th edition; Cronbach alpha computation; Testing whether a distribution is normal Histogram; Kolmogorov- Smirnov test & Shapiro-Wilk test; Skewness-Kurtosis values; Displaying psychometric properties of questionnaire into tables and reporting it in text | To learn some of the most frequently used tools and techniques for describing the data. To compute the range, interquartile range, variance, variance, and standard deviation and know what these values mean, to compute score and the coefficient of variation and understand how they are applied in decision making situations. | Students will learn the concepts of data manipulating. Students will be trained the applications and  implementations of data processes.  Student will learn the concepts of data summarization through the Implementation of data process. Students will recognize the data reliability t e c h n i q u e s .  Students  will learn about the Dispersion and variation of numerical data | **Quiz 1** | Within a week |
| 4 & 5 | **Association of Two Quantitative variables: Correlation Analysis**:  **Association of Two Qualitative variables:** Chi-square Analysis | Pearson Product Moment Correlation Coefficient;  Spearman Correlation; Kendall's Tau (Non-Parametric)  Displaying and reporting correlation & Associatoin analysis | Students will learn the concepts of developing association between two quantitative variables  Students will learn the concepts of developing association between two qualitative variables | Assignment # 2 | Within a week |
| 6 | **Sampling-Estimating Single, & Two Population Parameters**  **:** Point of Confidence Interval Estimates for a Population Mean: Hypothesis Tests for Means**:** Formulating the Hypothesis Null and Alternative Hypothesis, Testing the Status Quo, Testing a Research Hypothesis, Types of Statistical Errors, Significance Level and Critical values, Hypothesis test for*µ*, σ Known, Calculating Critical Values, Decision Rules and Test Statistics. | This topic targets to discuss the logic behind, and demonstrate the techniques for, using sample data to test hypotheses and develop interval estimates about the difference between two population means for independent samples . This topic plans to discuss the most important feature of inferential statistics Which is hypothesis testing, the situations under which it is used.  How it is used in decision making and its significance in terms of completing and carrying out different research projects. | Students will become skilled at the use of testing of different hypotheses.  Students will be able to check data direction either accept or reject by using different decision making approaches.  Students will become skilled towards decision making by displaying and reporting independent sample *t*-test in research report;  . | Quiz # 2  /Presentation | Within a Week |

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| 7 | **Analysis of Variance; One and Two way ANOVA** | This topic targets to discuss the logic behind, and demonstrate the techniques for, using sample data to test hypotheses and develop interval estimates about the difference among more than two population means for independent samples. Understanding its assumptions Interpreting its output;  Displaying and reporting above mentioned tests in research reports | Students will become skilled at the use of testing of different hypotheses.  Students will be able to check data direction either accept or Reject by using different decision making approaches.  Students  will become skilled towards decision making | Assignment # 3/Presentation | Within a week |
| 8 | **MID TERM** | | | | |
| 9 | **Non-Parametric Tests (The Wilcoxon-Signed Rank Test & Mann-Whitney test)** | Learn a Research work to create impact. | Students will become skilled at the applications of research in  different disciplines | Presentations | Within a week |
| 10 | **Repeated Measure ANOVA** | One way Repeated measure ANOVA; Understanding its assumptions; | Students will become skilled in interpreting its output; Displaying and reporting the given mentioned test in research reports | Assignment # 4  / Quiz # 3 | Within a week |
| 11 | **Regression Models:** General Linear Regression | To understand a linear relationship between response variable and regressor for the purpose of prediction. To be able to qualify for general relationship for better model. To be able to apply SPSS to quantify this relationship.  Understanding its concepts Methods of regression Checking assumptions Linear regression Interpretation of regression Displaying and reporting regression in research | Students will become skilled towards research completion. | Assignment# 5/Presentations | Within a week |
| 12 &  13 | **Mediation Analysis & Moderation Analysis** |  | Student will learn about the relationship between variables, and their directions. | Presentations/ Quiz#4 | Within a Week |
| 14 | **Revision** | | | | |
| 15 | **FINAL TERM** | | | | |