



UNIVERSITI TEKNOLOGI MARA

EDU707: QUANTITATIVE RESEARCH METHODS AND ANALYSIS

<b>Course Name (English)</b>	QUANTITATIVE RESEARCH METHODS AND ANALYSIS <b>APPROVED</b>
<b>Course Code</b>	EDU707
<b>MQF Credit</b>	3
<b>Course Description</b>	The purpose of this course is to provide students with an introduction to many different types of quantitative research methods and statistical techniques. This course will be divided into two major sections: 1) methods for quantitative research and, 2) quantitative statistical techniques for analysing data. Throughout the course, students will gain an overview of the important concepts of research design, data collection, statistical and interpretative analysis, and final report presentation. Major areas to be discuss in the research methods include research designs, sampling, instrumentation and validation process whereas for the statistical techniques will include descriptive and inferential statistics and applications of SPSS as a tool in assisting data analysis and interpretation. For this statistical analysis section, greater emphasis will be placed on interpretation and understanding of concepts rather than computation.
<b>Transferable Skills</b>	This course will give students the grounding in research methods, statistical analysis and the process of writing a research report.
<b>Teaching Methodologies</b>	Lectures, Lab Work, Discussion
<b>CLO</b>	CLO1 Explain concepts and principles foundational to quantitative research design. CLO2 Compare methods of investigating and collecting quantitative data CLO3 Correlate research questions with appropriate choices of statistical analysis
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. 1. Introduction to Quantitative Research</b> 1.1) Discussion will be on "What is research"; "Introduction to Educational Research"; Research as a scientific inquiry; Nature of research; "What is Quantitative research"; "Differences between Qualitative and Quantitative research"; Ethics of research; "Writing a Research Proposal: The Study, Literature Review and Methodology".	
<b>2. 2. Quantitative Research Methodology</b> 2.1) Discussion will be on Research designs: descriptive research, correlational research, and experimental research; Population and Samples; Sampling techniques –Simple random, Stratified , Systematic, Cluster and Multi stage; Determining sample size; Instrumentation and validation process.	
<b>3. 3. Introduction to Statistics</b> 3.1) Discussion will be on elementary statistical concepts that provide the necessary foundations for more specialized expertise in any area of statistical data analysis. The selected topics illustrate the basic assumptions of most statistical methods and/ or have been demonstrated in research to be necessary components of one's general understanding of the 'quantitative nature' of reality. It includes what is statistics, role of statistics, development of statistics, variables, scales and measurement, descriptive and inferential statistics, population and sample.	
<b>4. 4. Descriptive Statistics</b> 4.1) Define the term of descriptive statistics; differentiate between descriptive and inferential statistics in terms of purpose. Graphical and numerical descriptive methods, concept of central tendency, variation and its characteristics; type of research questions and its appropriateness using descriptive analyses. Introduction to data analysis using SPSS: descriptive statistics.	

## **5. 5. Inferential Statistics**

5.1) Purpose of inferential statistics ; null hypothesis and describe its role in inferential statistics ; level of significance and describe its use in inferential statistics ; the meaning of the term statistically significant. Among the analysis of tests and measures to be discussed are correlation, T-test, Analysis of variance (ANOVA), and Chi-Square ; type of research questions and its appropriateness using inferential analyses. Introduction to data analysis using SPSS: Inferential statistics.

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Final Project	Students will display their ability to use information and knowledge effectively in order to form research question, collecting data, coding data, entering data, organizing sets of data, analyzing data and interpreting data. It is also an evident of their ability to communicate effectively in writing to correlate research questions with its interpretations.	40%	CLO2
	Practical	In this assessment, students will be clinically assess to gauge their ability in using SPSS to : organize data, analyze and the ability in correlating various research question with appropriate choices of statistical analyses.	20%	CLO3
	Quiz	Students will display their abilities and level of conceptual understanding in the fundamental concepts of quantitative research methodologies and analysis.	40%	CLO1

Reading List	Recommended Text	<ul style="list-style-type: none"> <li>• Fraenkel, J.R. &amp; Wallen, N.E. 2018, <i>How to Design and Evaluate Research in Education</i>, New York: McGraw Hill Inc. New York: McGraw Hill Inc.</li> </ul>
	Reference Book Resources	<ul style="list-style-type: none"> <li>• Parmjit Singh, Gurnam Kaur &amp; Chan Yuen Fook 2014, <i>A comprehensive guide to writing a research proposal.</i>, 7th Ed., Venton Publication Kuala Lumpur</li> <li>• Daniel Muijs 2016, <i>Doing Quantitative Research in Education with SPSS</i>, 6th Ed., SAGE Publications Ltd . USA</li> <li>• William E. Martin, Krista D. Bridgmon 2018, <i>Quantitative and Statistical Research Methods: From Hypothesis to Results</i>, 6 Ed.</li> </ul>
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	