UNIVERSITI TEKNOLOGI MARA

ADS511: RESEARCH METHODOLOGY AND DATA ANALYSIS

Course Name (English)	RESEARCH METHODOLOGY AND DATA ANALYSIS APPROVED
Course Code	ADS511
MQF Credit	4
Course Description	The course focuses on fundamental approach to empirical research. The formulation of a research proposal starts from generation of an idea to the eventual write up the proposal. The course covers research designs, sampling strategies, sample size selection, measurement issues, developing conceptual framework and hypothesis. Besides simple qualitative approach, basic descriptive and inferential statistics will be covered with the use of the SPSS software package.
Transferable Skills	1) identifying the elements of scientific research 2) preparing and developing research proposal 3) ability to adopt appropriate statistical techniques for data analysis
Teaching Methodologies	Lectures, Tutorial, Supervision, Project-based Learning
CLO	CLO1 Perform appropriate qualitative and quantitative analysis involving the use of statistical tools CLO2 Analyze governance and administrative issues by performing appropriate qualitative and quantitative analysis CLO3 Retrieve and manage information related to governance and administrative issues
Pre-Requisite Courses	No course recommendations

Topics
1. Types of research 1.1) Empirical 1.2) Conceptual/Theory 1.3) Basic research 1.4) Applied research
2. Research methodologies 2.1) Qualitative vs. quantitative 2.2) Hypothetical-deductive and inductive method 2.3) Elements of the scientific method
3. The problem statement 3.1) Constructing the problem statement 3.2) Identifying problem from symptoms
4. The research question and objective 4.1) Setting objectives and questions 4.2) Interconnections between res. objectives and other elements of the research
5. The literature review 5.1) What is it and why? 5.2) Tracking the sources for reviews 5.3) Literature summary vs Literature review
6. Conceptual framework 6.1) Concepts, phenomena, constructs, theories and models, 6.2) The differences between conceptual, research and theoretical framework 6.3) Types of variables; independent, dependent, intervening and spurious 6.4) Causality and correlation

7. Research designs 7.1) Experiments 7.2) Quasi-experiments 7.3) Sample surveys 7.4) Cross sectional study 7.5) Longitudinal study 7.6) Single case study 7.7) Multiple case studies
8. Sampling and sampling size 8.1) Why sample? 8.2) Sampling frame 8.3) Sampling methods 8.4) probability vs non probability sampling techniques 8.5) population survey 8.6) 8.7) Sample Size 8.8) Systematic determination of sample size 8.9) Effect size based sample size determination
9. Measurement/Instrumentation 9.1) Types of data; nominal, ordinal, interval and ratio 9.2) Developing measures/instruments (Quantitative and Qualitative) 9.3) Scaling techniques 9.4) Reliability and validity of measures (such as Cronbach alpha, Cohen's kappa)
10. Data collection 10.1) Types of Observation 10.2) Recording observations 10.3) Types of Interviews 10.4) Preparing for interviews 10.5) Recording interviews 10.6) Questionnaire; telephone, mailed or directly administrated 10.7) Questionnaire design principles
11. Quantitative data analysis 11.1) Data entry 11.2) Data cleaning 11.3) Descriptive statistics 11.4) Mean/mode/median 11.5) Variance 11.6) Standard deviations 11.7) Distribution characteristics 11.8) Univariate and Multivariate assumptions tests
12. Quantitative data analysis (Inferential statistics) 12.1) Reliability analysis 12.2) T-tests 12.3) ANOVA 12.4) Correlations 12.5) Chi-square and cross tabulations 12.6) Multiple Regression
13. Qualitative data analysis 13.1) Transcription 13.2) Coding 13.3) Thematic Analysis 13.4) Drawing conclusions 13.5) Reliability and validity in qualitative research
14. Hypothesis testing 14.1) Significance levels 14.2) Effect sizes

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Case Study	Case Study on Research Knowledge	20%	CLO2
Lab Exercise	Data Analysis Report	30%	CLO1
Written Report	Research Proposal	50%	CLO3

Reading List

Recommended Text

- **Hazman Shah Abdullah and Yarina Ahmad 2016, *Research Method Guide; Bachelor of Administrative Science,***
- **Pallant 2013, *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS*, 5th Ed., Open University Press**
- **Miles, Huberman and Saldana 2013, *Qualitative Data Analysis: A Methods Sourcebook*, Sage Publication**
- **Merriam and Tisdel 2015, *Qualitative Research: A Guide to Design and Implementation*, John Wiley and Sons**

Reference Book Resources

- **Sekaran, U. & Roger Bougie 2013, *Research methods for business. A skill building approach,*, 5th Ed., Prentice-Hall New York**
- **Tabachnik and Fidel 2013, *Using Multivariate Statistics.*, Pearson New York**
- **Welch, S. and Comer, J.C 2006, *Quantitative methods for public sector:Techniques and applications.*, The Dorcey Press: Homewood, Ill.**
- **Coakes, S. J. 2013, *SPSS Version 20.0 forWindows. Analysis without Anguish*, John Wlley and Sons AUstralia**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources