

UGANDA MARTYRS UNIVERSITY

UNIVERSITY EXAMINATIONS

SCHOOL OF ARTS AND SOCIAL SCIENCES

**DEPARTMENT OF GOVERNANCE, PEACE AND INTERNATIONAL
STUDIES**

YEAR ONE SEMESTER TWO 2023/2024 FINAL ASSESMENT

COURSE CODE : C2

COURSE UNIT : ADVANCED QUANTITATIVE METHODS

PROGRAM : Master of Research and Public Policy

DATE: 17/05/24

TIME: 9.30 am – 12.30 pm

DURATION: 3 hours

Instructions:

1. This examination consists of **SIX** questions.
 2. Attempt any **FOUR** questions. Each question carries 25 marks.
 3. Any type of examination Malpractice will lead to automatic disqualification.
 4. Ensure that your **Registration number** is indicated on all pages of the examination answer booklet.
 5. Remember to indicate the question numbers you have attempted.
-
-

QUESTION ONE

In social science and public policy research, various paradigms guide researchers in understanding, interpreting, and analyzing phenomena. These paradigms represent different philosophical and methodological approaches to studying human behavior, societies, and policies. The three pillars of a research paradigm provide a useful lens for researchers to analyze and interpret their work.

- (a) Explain the **three** pillars of research paradigm. (9 marks)
- (b) Discuss **four** types of research paradigms that create a universal framework used in evaluating research in public policy, giving examples of research methods that each utilizes. (16 marks)

QUESTION TWO

Policy analysis involves using quantitative and/or qualitative techniques to define a policy problem, demonstrate its impacts, and present potential solutions. Quantitative methods have long been used in public decision making.

- (a) Explain the relevance of advanced quantitative methods to public policy. (10 marks)
- (b) Discuss any **four** quantitative statistical methods and show how each helps a policy analyst. (15 marks)

QUESTION THREE

Public policy research involves various levels of data analysis to understand, evaluate, and inform decision-making processes.

- (i) Using relevant examples, discuss the three broad categories of the levels of data analysis in public policy research. (15 marks)
- (ii) What are the common contemporary sources of data for public policy in Africa used in data analysis? (10 marks)

QUESTION FOUR

- (i) Give two differences and three similarities between correlation analysis and regression analysis. **(5 marks)**
- (ii) Officials in the Ministry of works and Transport conducted a survey to assess factors determining the taxi fares in Kampala City. In the process of analyzing their data, a Pearson correlation between two variables was generated at 95% confidence level as shown below;

Correlations			
		Taxi fares	Number of taxis on the road
Taxi fares	Pearson correlation	1	-0.765**
	Sig. (2-tailed)		0.000
	N	30	30
Number of taxis on the road	Pearson correlation	-0.765**	1
	Sig. (2-tailed)	0.000	
	N	30	30
**Correlation is significant at the 0.05 level (2-tailed)			

- (a) Identify the variables under study, suggest their possible measures and why. State the study sample. **(4 marks)**
- (b) Explain the purpose of computing a correlation coefficient between variables. **(3 marks)**
- (c) As a person knowledgeable in Data management and analysis, provide a clear interpretation of the Pearson correlation results generated above. **(6 marks)**
- (d) What conclusions can you make out of the results? **(3 marks)**
- (e) Suggest two relevant recommendations to the ministry of works and transport based on the above findings. **(4 marks)**

QUESTION FIVE

- (a) What is meant by multiple linear regression analysis? (1 mark)
- (b) What are the conditions on the dependent variable and independent variables while using a multiple linear regression model? (4 marks)
- (c) The table below shows the results from a study aimed at determining the factors associated with number of years spent at school. It was assumed from the available literature that number of years one spends at school is dependent on residence, wealth index and religion.

Prob > F = 0.0000 Adj R-squared = 0.7808

Number of years spent at school	Coefficient (95% CI)	Standard error	t	P>t
Urban	1.00			
Rural	-0.74 (-0.89, -0.60)	0.0738	-10.09	0.000*
Poorest	1.00			
Poorer	1.16 (1.00,1.31)	0.0797	14.53	0.000*
Middle	1.80 (1.65,1.96)	0.0808	22.33	0.000*
Richer	3.05 (2.89,3.21)	0.0815	37.39	0.000*
Richest	5.50 (5.32,5.68)	0.0909	60.57	0.000*
Siblings	0.00 (-0.02,0.01)	0.0090	-0.5	0.619
No religion	1.00			
Anglican	1.96 (0.61,3.31)	0.6885	2.84	0.004*
Catholic	1.54 (0.20,2.89)	0.6880	2.25	0.025*
Muslim	1.56 (0.21,2.92)	0.6911	2.26	0.024*
SDA	1.83 (0.42,3.23)	0.7160	2.55	0.011*
Orthodox	1.75 (-0.22,3.72)	1.0047	1.74	0.081
Pentecostal	1.88 (0.53,3.24)	0.6906	2.72	0.006*
Others	1.15 (-0.28,2.57)	0.7263	1.58	0.115
Constant	2.77 (1.41,4.13)	0.6924	4	0.000*

- (i) Write down the dependent variable and independent variables. (4 marks)
- (ii) Determine the factors that predict the number of years one spends at school. (3 marks)
- (iii) Interpret the results in the above table. (10 marks)
- (iv) What recommendations can you make from the findings of the study? (3 marks)

QUESTION SIX

- (a) What is impact evaluation? (1 mark)
- (b) What is the main aim of impact evaluation? (2 marks)
- (c) Give the importance of impact evaluation. (6 marks)
- (d) Write short notes on each of the following basic impact evaluation designs.
- (i) Non-experimental design (4 marks)
 - (ii) Experimental design (4 marks)
 - (iii) Quasi-experimental design (4 marks)
- (e) In a certain country, the performance of students in government schools was not good. One of the reasons contributing to poor performance was children staying hungry at school the whole day. A food policy was introduced where parents and guardians have a responsibility of feeding children while at school. The parent/guardian led school feeding policy encourages parents and guardians to send children to school with food. In a randomized control trial (RCT) design study, the researcher was interested in finding out the impact of food policy on academic performance. Two groups of students were identified, these were labelled as 0=treat for control; treat=1 is for treatment. The study targeted 24 students and the study started in year 2014 and ended in year 2015. Data was obtained from all students at the base line and end line i.e. no attrition and contamination. Impact was measured after one year of intervention as shown in the table below.

Source	SS	df	MS	Number of obs	=	48
				F(3, 44)	=	107.3
Model	12573.79	3	4191.26389	Prob > F	=	0.0000
Residual	1718.688	44	39.0610795	R-squared	=	0.8797
				Adj R-squared	=	0.8715
Total	14292.48	47	304.095301	Root MSE	=	6.2499

Performance	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
treat						
Treatment	-0.875	2.70628	-0.32	0.748	-6.329149	4.579149
year_new						
2015	2.5	3.124943	0.8	0.428	-3.797909	8.797909
treat#year_new						
Treatment#2015	32.8125	3.827258	8.57	0.000	25.09917	40.52583
Constant	36.5	2.209669	16.52	0.000	32.04671	40.95329

Interpret the results in the above table

(4 marks)

SUCCESS