



Lahore University of Management Sciences

EDU 263 - Quantitative Research Methods

Summer 2024

Instructor	Ahmad Ayub
Teaching Assistant	
Room No.	TBA
Class Hours:	TBA
Email:	ahmad.ayub@lums.edu.pk

COURSE BASICS

Credit Hours	3			
Lecture(s)	No. per week		Mins.	75

COURSE DESCRIPTION

Core	
Elective	Yes
Open for Student Category	Open to undergraduate Sophomores, Juniors, Seniors
Prerequisites	-
Anti-requisite	-

COURSE OBJECTIVES

Quantitative Research Methods provides basic training in the gathering, description, and analysis of quantitative information in the social science. The goal of this course is to provide the students with a sophisticated understanding of both evaluating and conducting quantitative research. Starting from the formulation of research questions and working through data collection and types of analysis, this course introduces the quantitative research process and exposes students to concepts and procedures, which are fundamental to conducting quantitative research in social science.

Throughout the course, an emphasis will be placed on the relationship between theory and methods, the meaning behind the numbers, and telling stories based on the evidence.

The course will help students:

1. Become familiar with foundational concepts of research:
 - philosophical positioning (constructs, hypotheses, thick description)
 - robustness(e.g., validity, bias, sampling, measurement)
2. Develop comfort with quantitative approaches, data collection and basic analysis techniques



Lahore University of Management Sciences

3. Realize the relevance of mixed methods in today's world, especially for real world research applicability

LEARNING OUTCOMES

At the end of the course, students should be able to:

- Differentiate between research methods and research approaches
- Transition from theory to real-world argument via literature review and instrument design
- Develop a data collection tool of their choice to a basic research standard

GRADING BREAKUP AND POLICY

Assessments:

Attendance & CP (15%)

Research Question & Literature review (10% + 15%)

Mid Term (25%)

Case Study (5%)

Survey design & Paper (20% + 10%)

Research Question: The student groups will submit a research question based on any social science problem which they will justify with literature review.

Review of literature: A one-page review of peer-reviewed academic research on a research question topic identified by each student group. The expectation will be that the review will present information collected in an analytic way and conclude with a research question

Survey Design and Paper: Student groups will collaborate to design a quantitative survey instrument to address the quantitative research question you developed in your literature review. The unique link to your online survey will be submitted to instructor. In addition, write a narrative to describe the validity of measurement and sampling methods you would use to operationalize the survey. Make two to three hypotheses (if possible) on survey outcomes as related to your research question; use at least one literature source to back up each hypothesis

Case Study: Students will solve one case study based on social science research experiments

Examination Detail

Midterm Exam	Yes
Final Exam	No



Lahore University of Management Sciences

COURSE OVERVIEW			
Week	Theme	Topic	Reading
1	Fundamental concepts of Quantitative Research	<ul style="list-style-type: none"> Research Fundamentals 	Trochim, Ch 1; pp 23-26. Class discussion
		<ul style="list-style-type: none"> Link Between Theory and Observation 	<ul style="list-style-type: none"> Muralidharan, Karthik, and Venkatesh Sundararaman. "Teacher performance pay: Experimental evidence from India.". pp 39-43
		<ul style="list-style-type: none"> Intro to literature review 	<ul style="list-style-type: none"> Attanasio, Orazio P. "The determinants of human capital formation during the early years of life: Theory, measurement, and policies.". pp 949-954.
2	Research Validity	<ul style="list-style-type: none"> Validity and Types Variable properties & types (recap) 	Trochim, Ch 1; pp 26-30.
	Research Design	<ul style="list-style-type: none"> Cause and effect Descriptive design Correlational design Experimental design 	Trochim, Ch 8; pp 206-211, Ch 9; 230-236 Class discussion and articles (in readings) Case Study
3	Variables and measurement errors	<ul style="list-style-type: none"> Levels of Measurement, Quality of Measurement Construct Validity, measurement errors 	Trochim, Ch 5; pp 112-118; 127-129. Zikmund, Ch 13.
	Survey Research	<ul style="list-style-type: none"> Survey design and associated concerns 	Trochim, Ch 7; pp 172-193. Mertler, Ch 7. Class discussion
4	Intro to Sampling	<ul style="list-style-type: none"> Distribution, Central Tendency, Dispersion (recap) Sampling 	Trochim, Ch 4; pp 80-96 Zikmund, Ch 16.
5-6	Sampling Statistics	<ul style="list-style-type: none"> Sampling Distribution, Standard error, Central Limit Theorem 	Trochim, Ch 11; pp 291-295. Basic Introduction to STATA
	Correlation and Linear Regression	<ul style="list-style-type: none"> Linear correlation OLS Hypothesis Testing 	Trochim, Ch 12; pp 306-318. Basic Introduction to STATA



Lahore University of Management Sciences

TEXTBOOKS/READINGS

1. Trochim, W., J. Donnelly, & K. Arora (2016) *Research Methods: The Essential Knowledge Base*. Boston, MA: Cengage Learning.
2. Zikmund, William G., Jon C. Carr, and Mitch Griffin (2013). *Business Research Methods*. Cengage Learning.
3. Mertler, Craig A. *Introduction to Educational Research*, 2018.

Supplementary:

1. Cameron, Adrian Colin, and Pravin K. Trivedi. *Microeconometrics using STATA*. Vol. 2. College Station, TX: Stata press, 2009.

Articles:

1. Barrera-Orsorio et al (2011) "Improving the Design of Conditional Transfer Programs: Evidence from a Randomized Education Experiment in Colombia". *American Economic Journal: Applied Economics* 3: 167-195
2. Deon Filmer, Norbert Schady (2011) "Does more cash in conditional cash transfer programs always lead to larger impacts on school attendance?". *Journal of Development Economics*, Volume 96, Issue 1, Pages 150-157