Multilevel Data Analysis

AQ801-3-M-MDA (Version 3)

Week 1

Introduction and Module Overview

Lecturer Information

- Lecturer Name: Tan Kok Kiang

- Email: kok.kiang@apu.edu.my

- Consultation Hours: Refer to iConsult

Pre-Requisites For This Module

- MMDA
- SAS Studio
- Statistical knowledge

Outcomes Based Education

- OBE is education based on producing particular educational outcomes that:
  - ➢ Focus on what students can actually do after they are taught.
  - ➢ Expect all learners / students to successfully achieve particular (sometimes minimum) level of knowledge and abilities.

- It's NOT what We want to teach.
- It's WHAT You should learn.

Aims of this Module

- Multilevel Data Analysis introduces the knowledge of nesting structure data to accomodate hierarchical linear data structure. This module covers Hierarchical Linear Model and Random Intercept Model, and the problems relevant to multilevel data. The acquired knowledge is useful to treat multilevel data, identify the linkage between two stage sampling and appropriate method in analysing data.

Module Learning Outcomes

CLO	Learning Outcomes	Assessment
1	Appraise the concepts, theory and practice that related to Hierarchical Linear Model	Exam
2	Construct appropriate multilevel model for varying circumstances	Individual Assignment
3	Perform multilevel data analysis for large dataset using computer software	Individua Assignment

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO12
CLO1		✔										
CLO2							✔					
CLO3						✔						

The learning domains are:
PLO2: Cognitive Skills
PLO6: Digital Skills.
PLO7: Numeracy Skills.

Student Learning Time

- Module Credit Value: 3
- Total Learning Hours: 120 per semester

Lecture	18 hours
Tutorial	24 hours
Practical	0 hours
Others	0 hours
Independent Learning Time	57 hours
Assessment	21 hours
Total Learning Hours	120 hours per semester

Module Content Outline

Week	Topic
1	Introduction
2	Multilevel Theories, Multi-Stage Sampling and Multilevel Models
3 – 4	Statistical treatment of clustered data
5 – 6	The random intercept model
7	The hierarchical linear model
8	Testing and model specification

Assessment Summary

Form of Assessment	Assessment Methods	Hand Out Date	Hand In Date	%
Continuous Assessment	Individual Assignment	3rd week	7th week	50%
Final Assessment	Final Exam			50%

Expectations

1. Abide by ALL rules and regulations of APU.

2. Proper attire.

3. No speaking of dialects.

4. Attendance is compulsory. Valid Medical Certs must be supported in any absence from class.

5. Three cases of Late will be equal to 1 absence.

6. Use proper academic references – APA Referencing only.

7. Academic Dishonesty / Plagiarism is a serious offence. Any suspicions will be referred to the University's Academic Dishonesty Board.

8. Formal assessments must be submitted on time in the specified format given. Failure to meet deadlines will be treated as non-submission and no marks will be awarded. Incomplete submissions will be subjected to penalty of mark deductions or forfeit.

Achievement Requirements:
Postgraduate Programmes

Marks	Alphabetical Grade	Grading Point	Classification
80-100	A+	4.0	Distinction
75-79	A	3.8	
70-74	B+	3.6	Merit
65-69	B	3.5	
60-64	C+	3.3	Pass
55-59	C	3.2	
50-54	C-	3.0	
40-49	D	2.5	Fail (marginal)
30-39	F+	2.0	Fail
20-29	F	1.5	Fail
10-19	F-	1.0	Fail
0-9	U	0	Unclassified

Reference Materials

Course Materials available in Moodle

- Module handbook
- Module descriptor
- Lecture slides
- Tutorial materials
- Sample assignment questions & answers
- Sample exam questions & answers

Essential and Further Readings

- Luke, D, A (2020) Multilevel Modelling (Quantitative Applications in the Social Sciences) 2nd Ed. Sage (ISBN 978-1544310305)

- Moerbeek, M and Teerenstra, S (2021) Power Analysis of Trials with Multilevel Data (Chapman & Hall/CRC Interdisciplinary Statistics) (ISBN:978-0367783440) Routledge

*Further readings will be assigned from time to time.

Your Valuable Feedback

- You are welcome to discuss your views on this module at any point of time.

- Do fill in anonymous evaluation questionnaires in the student feedback form. There are two points - mid and end of the teaching semester.

- The feedbacks you provide will be constructive for improvement of teaching and module content development.