City University of Hong Kong

Information on a Course
offered by Department of Applied Social Sciences
with effect from Semester A 2014/2015

Part I

Course Title:	Multivariate Statistics for Psychology
Course Code:	SS5795
Course Duration:	One semester
No. of Credit Units:	3
Level:	P5
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: (Course Code and Title):	SS5780 Research Design & Analysis in Psychology
Precursors: (Course Code and Title):	Nil
Equivalent Courses: (Course Code and Title):	Nil
Exclusive Courses: (Course Code and Title):	SS5797 Advanced Research Methods in Psychology

Part II

1. Course Aims:

This course aims to develop an understanding of and practical skills in choosing appropriate strategies and analytic procedures to manage, analyze, present, interpret and report multivariate data collected in and arising from psychological research. The training will be focused on the multivariate statistics commonly used in psychology research, including MANOVA, multiple regression, path analysis, factor analysis (EFA and CFA), and structural equation modeling (SEM). Other topics such as missing data, logistic regression, etc will also be introduced.

Upon completion of this course, students will be capable of doing in-depth data analysis independently for their research (e.g., final year thesis). In this course, students are given plenty of practice and exercise with the statistical softwares (e.g., SPSS, LISREL, etc). Mathematical calculations will be kept to a minimal level. Knowledge about elementary statistics such as correlation, ANOVA, and regression will be advantageous.

2. Course Intended Learning Outcomes (CILOs)

(state what the student is expected to be able to do at the end of the course according to a given standard of performance)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting
1.	Describe major methods in analyzing multivariate data in psychological research;	20%
2.	Apply appropriate data analytic procedures to analyze multivariate data arising from psychological research;	30%
3.	Interpret research findings that involve multivariate data critically; and	30%
4.	Communicate research findings that involve multivariate statistics in a scholarly way.	20%

3. Teaching and learning Activities (TLAs)

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	TLA1	TLA2	TLA3	Hours / week (if applicable)
CILO 1	√	√	√	
CILO 2	√	√	√	
CILO 3	√	√	√	
CILO 4	√	√		

Describe the TLAs:

TLA1: Assigned Readings

Students are required to read one to two assigned paper(s) and/or chapter(s) per week before attending each lecture.

TLA2: Lectures

Major theories and key concepts in managing, analyzing, presenting, interpreting and reporting multivariate data collected in and arising from psychological research will be explained in the scheduled lectures.

TLA3: Workshops

Hands-on activities on SPSS are provided to deepen students' understanding in theories and concepts explained in the lectures and to develop skills in multivariate data analysis and interpretation.

4. Assessment Tasks/Activities

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	Type of Assessment Tasks/Activities	Weighting	Remarks
CILO 1-4	AT1: Group presentation	30%	Group
CILO 1-3	AT2: Quiz	40%	Individual
CILO 1-4	AT3: Research report	30%	Individual

Further description of TAs:

AT1: Group project (30%)
Students are required to work on multivariate data collected from research projects to demonstrate their abilities in analyzing multivariate data and presenting the results.

AT2: Quiz (40%)
This is a skill-based assessment, which utilizes different data sets to assess students' knowledge about SPSS in various aspects (e.g., data diagnosis and screening, model specification, result interpretation, etc.).

AT3: Research report (30%)
Students are required to write up a research report, in which the rationale, procedures, and findings regarding use of multivariate statistics should be clearly communicated.

5. Grading of Student Achievement:

Refer to Grading of Courses in the Academic Regulations (Attachment) and to the Explanatory Notes to establish grading standards.

Letter Grade	Grading criteria in relation to CILOs
A+ A A-	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.
B+ B B-	Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.
C+ C C-	Student who is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.
D	Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.
F	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited, or irrelevant use of literature.

Part III

1. Keyword Syllabus:

Reviewing techniques in univariate and bivariate data analysis, advantages and limitations of multivariate data analysis, exploring multivariate data, assumptions and requirements of multivariate statistics, factor analysis, multiple regression, multivariate analysis of variance (MANOVA), path analysis and structural equation modelling.

2. Recommended Reading:

Essential Reading

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Supplementary Readings

Bordens, K. S., & Abbott, B. B. (2005). *Research design and methods: A process approach* (6th ed.). Boston: McGraw-Hill.

Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Mahwah, N.J.: Lawrence Erlbaum.

Cardinal, R., & Aitken, M. (2006). *ANOVA for the behavioural sciences researchers*. Mahwah, New Jersey: Lawrence Erlbaum.

Dugard, P., Todman, J. B., & Staines, H. (2010). *Approaching multivariate analysis: A practical introduction* (2nd ed.). New York, NY: Routledge.

George, D., & Mallery, P. (2006). *SPSS for Windows step by step: A simple guide and reference* (6th ed.). Boston: Pearson/Allyn and Bacon.

Grimm, L. G., & Yarnold, P. R. (Eds.). (1995). *Reading and understanding multivariate statistics*. Washington, DC: American Psychological Association.

Keith, T. Z. (2006). *Multiple regression and beyond.* Boston: Pearson/Allyn and Bacon.

Leech, N., Barrett, K., & Morgan, G. (2005). *SPSS for intermediate statistics: Use and interpretation* (2nd ed.). Mahwah, New Jersey: Lawrence Erlbaum.

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Thousand Oaks, Calif.: Sage.

Spicer, J. (2005). *Making sense of multivariate data analysis*. Thousand Oaks, Calif.: Sage.

Stevens, J. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, N.J.: Lawrence Erlbaum.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson/Allyn and Bacon.

Vogi, P. W. (2007). *Quantitative research methods for professionals*. Boston: Pearson/Allyn and Bacon.