



多變量分析

MULTIVARIATE ANALYSIS

本資訊僅提供本校師生參考。有著作權，非本校人員若欲使用本資訊，請洽本校取得授權。
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基本素養 Basic Literacy

倫理推論

統計專業者主要從事蒐集資料和資料分析的工作，對資料的使用與保密，須遵循個資法的規範

Ethical Reasoning

Graduate students should be able to identify ethical dilemmas and to determine necessary courses of action

全球化思維

學生需具自我學習的能力，適時的掌握現在國際間統計分析方法的更替，及全球商務變化地趨勢

Global Vision

Graduate students should possess a global statistical perspective and an awareness of the global business

核心能力 Competence

口頭表達能力

學生應具備口頭表達及描述能力，能將統計方法做適當描述、及與人溝通統計想法、概念、使用方式

Speaking

Graduate students should be able to appreciate statistical research and to present research findings/ results effectively in speaking

■ 寫作能力

學生能具備良好寫作能力，能將統計方法做適當描述、及與人溝通統計想法、概念、使用方式

Writing

Graduate students should be able to appreciate statistical research and to present research findings/ results effectively in writing

■ 跨領域性之融合與解題

學生不僅需瞭解統計方法的來龍去脈，還需瞭解問題的本質，才能提出適合的統計方法解決問題

開課系所 Department/Institute: 統計所
Statistics

開課教師 Instructor: 盧馬汀 Martin
Tshishimbi Wa Lukusa

開課學年 Academic Year: 0109

開課學期 Semester: 1

開課序號 Serial Number: 008

課程屬性碼 Course No (Attribute
Code): STAT6061

課程系統碼 Course System Number:
R251700

分班碼 Class Code:

學分數 No. of Credits: 3

課程語言 Medium of Instruction: 英文
English

課程網址 Course Website:

先修課程或先備能力

Prerequisite Course(s):

Statistics, Regression Analysis, Linear Algebra

教師聯絡資訊 Contact with Teacher

Instructor: Martin Lukusa (盧馬汀)

Office: 62319

E-mail: z10902020@email.ncku.edu.tw

助教資訊 Contact with Tutor

Interdiscip. Competence/ Prob. Solving

Graduate students should be able to integrate different functional areas in solving statistical problems

■ 批判思考及創新力

學生要能就所面對的資料及時提供出可行的統計分析策略及迅速完成相關資料分析

Critical Thinking/ Innovation

Graduate students should be able to analyze data effectively and to recommend effective statistical methods

□ 領導能力

同學需具備領導其他專長同仁解讀數據的才能

Leadership

Graduate students should be able to demonstrate leadership skills of a data analysis manager

□ 團隊合作

學生應具有與其他背景專長者，一同解決職場上問題的能力

Teamwork

Graduate students should be able to coordinate actions and solve problems jointly with other members of a professional team

課程概述 Course Description

1.多變量分析介紹。2.基本線性代數介紹。3.基本統計介紹。4.多變量常態分配。5.推論與比較。6.主成份分析。7.因子分析。8.判別與分類分析。9.群落分析。10.SAS與Statgraphics之介紹。

Topics on multivariate analysis basically can be divided into two parts: one is for mean vectors, the other one is for the analysis of covariance matrix (principal components analysis, factor analysis, discrimination and classification etc.). This course mainly focuses on the analysis of covariance structure, trying to explore the associations among a variety of variables.

Emphasis will also be placed on cluster analysis, which deals with grouping subjects into several subpopulations. Inference on the mean vector(s) will be discussed if time is available.

課程學習目標 Course Objectives

學習規範 Course Policy

Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

Participate

Students are expected to be active in all activities related to this course.

Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let the instructor know as early as possible.

Complete Assignments

Assignments must be submitted by the given deadline or special permission must be requested from the instructor *before the due date*. Extensions will not be given, except under specific circumstances.

Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider withdrawing from a course. Refer to the Channel Islands Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course.

Commit to Integrity

As a student in this course, you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class

- Understand the principles of each multivariate method.
- Select the appropriate methods in function to the research Problem.
- Apply those methods to real-world problems.
- Interpret and report the results from the analysis.

課程進度 Course Outline

週次 Week	進度說明 Progress Description
1	Overview of multivariate analysis
2	Short Review of Matrix Algebra
3	Multivariate normal distribution
4	Inferences about a mean vector
5	Comparisons of several multivariate means
6	Comparisons of several multivariate means
7	Principal components
8	Factor analysis
9	Confirmatory factor analysis
10	Structured equation models
11	Canonical correlation
12	Discriminate analysis
13	Logistic regression
14	Classification tree
15	Cluster analysis
16	Multidimensional scaling
17	Corresponding analysis
18	Final term (project presentation)

以上每週進度教師可依上課情況做適度調整。The schedule may be subject to change.

有關課程其他調查 Other Surveys of Courses

and also integrity in your behavior in and out of the classroom.

Academic Dishonesty Policy

Academic dishonesty includes such things as cheating, inventing false information or citations, plagiarism and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he/she does not possess.

評量方式 Grading

方法	百分比%
其他 others:Final project	60
其他 others:Homework	35
其他 others:Active Attendance	5

教學方法 Teaching Strategies

方法	百分比%
講授 Lecture	100

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課程教材 Course Material (校外連線設定)

1.Applied Multivariate Statistical Analysis, Johnson, R.A. and Wichern, Q.W., 6th edition, Prentice-Hall

相關電子書 相關電子書 相關電子書 相關電子書

1.本課程是否規劃業界教師參與教學或演講? 否

Is there any industry specialist invited in this course?

How many times? No

2.本課程是否規劃含校外實習(並非參訪)? 否

Are there any internships involved in the course?

How many hours? No

3.本課程是否可歸認為學術倫理課程? 否

Is this course recognized as an academic ethics course? In the course how many hours are regarding academic ethics topics? No

4.本課程是否屬進入社區實踐課程? 否

Is this course recognized as a Community engagement and Service learning course? Which community will be engaged? No

A

2.Methods of multivariate analysis, Rincher and Alvin C., 2nd edition.

[相關電子書](#) [相關電子書](#) M

參考書目 References (校外連線設定)

1.An Introduction to Applied Multivariate Analysis with R, Brian Everitt and Torsten Hothorn, Springer

[相關電子書](#)

2.Multivariate Data Analysis, Hair, J.F., Black, W.c, Babin, B.J. and Anderson, R.E., A global Perspective

備註 Remarks

Important Note:

Any forms of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

Course policies are subject to change. It is the student's responsibility to check Moodle for corrections or updates to the syllabus. Any changes will be posted in Moodle