

課程綱要與教學進度

107 學年度第 1 學期

課程名稱：（中文）管理資料分析		開課單位		管理學院碩士在職專班經營管理組		
（英文）Data Analysis for Management		永久課號		IBM6093		
授課教師：丁 承						
學分數	3	必/選修	必修	開課年級	研究所	
先修科目或先備能力：統計學						
課程概述與目標：						
<p>統計方法是管理資料分析的核心技術，本課程介紹在管理資料分析上應用廣泛的統計方法，包括單變量統計線性模式(含迴歸 (regression)、變異數分析 (ANOVA) 和共變數分析 (ANCOVA) 模式)，二元羅吉斯迴歸 (binary logistic regression) 以及多變量之主成份分析 (principal components)、探索性因素分析 (exploratory factor analysis, EFA) 及驗證性因素分析 (confirmatory factor analysis, CFA)，目的是使同學對這些方法有正確的認識與了解，另亦熟悉統計套裝軟體 SAS 在資料管理與分析上的操作技巧，期能提供同學們在修習管理知識及進行碩士論文研究過程中之實質助益。</p>						
教科書 (請註明書名、作者、出版社、出版年等資訊)：	Kutner, M. H., Nachtsheim, C. J., Neter, J., and Li, W. (2005), <i>Applied Linear Statistical Models</i> (5th ed.), McGraw-Hill International Edition.					
課程大綱			分配時數			備註
單元主題	內容綱要	講授	示範	習作	其他	
Introduction to Statistical Methods and Data Analysis	<ol style="list-style-type: none"> 1. The Role of Statistical Methods and Data Analysis in Management 2. Introduction to Statistical Package SAS 	3				
Multiple Regression	<ol style="list-style-type: none"> 1. Multiple Regression 2. Multicollinearity, Variable Selection 3. The Dummy Variable Technique 4. Testing for Moderating and Mediation Effects 5. Bootstrapping 6. Testing Homoscedasticity 7. Testing for Autocorrelation 	21				

ANOVA and ANCOVA	1. One-Factor ANOVA 2. Randomized Block Design 3. Analysis of Covariance 4. Two-Factor ANOVA 5. Nested Design	12				
Categorical Data Analysis	1. Binary Logistic Regression	3				
Dimension-Reduction Techniques	1. Principal Components 2. Exploratory Factor Analysis 3. Confirmatory Factor Analysis	9				

教學要點概述：

1. 學期作業：
期中考後(約 12 中下旬)有一次學期作業，教科書各章後之習題請自行練習，解答在書末光碟中。
2. 考試狀況：
期中考與期末考各一次。
3. 評量方法：
作業 20%，期中考 30%，期末考 50%。
4. 教學方法及教學相關配合事項(如網站、助教、圖書講義及資料庫等)：
全程由教師講授，以板書為主，並提供 SAS 講義給同學參考使用。

師生晤談 (Office Hours)	排定時間	地 點	連絡方式
	每週一 16:00 ~ 18:00 (其他時間可先預約)	教授研究室	cding@mail.nctu.edu.tw

教學進度表

週次	上課日期	課程進度、內容、主題
1	每週一 18:40 ↓ 21:30	The Role of Statistical Methods and Data Analysis in Management and A General Introduction to Statistical Package SAS
2		Multiple Regression
3		Multicollinearity and Variable Selection
4		The Dummy Variable Technique
5		Testing for Moderating and Mediation Effects
6		Bootstrapping
7		Testing Homoscedasticity
8		Testing for Autocorrelation
9		期中考

10	One-Factor ANOVA
11	Randomized Block Design (RBD) and Analysis of Covariance (ANCOVA)
12	Two-Factor ANOVA (Balanced and Unbalanced)
13	Nested Designs, Mixed Models
14	Binary Logistic Regression
15	Principal Components
16	Exploratory Factor Analysis
17	Confirmatory Factor Analysis
18	期末考

參考書籍與文獻：

- [1] Afifi, A. A. and Clark, V. (1990), *Computer-Aided Multivariate Analysis* (2nd ed.), New York: Van Nostrand Reinhold.
- [2] Agresti, A. (2007), *An Introduction to Categorical Data Analysis* (2nd ed.), New York: Wiley.
- [3] Allison, P. D. (1991), *Logistic Regression Using the SAS System: Theory and Application*, Cary, NC: SAS Institute Inc.
- [4] Baron, R. M., and Kenny, D. A. (1986), The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations, *Journal of Personality and Social Psychology*, 51, 1173–1182.
- [5] Berenson, M. L., Levine, D. M. and Goldstein, M. (1983), *Intermediate Statistical Methods and Applications: A Computer Package Approach*, Englewood Cliffs, NJ: Prentice-Hall.
- [6] Draper, N. R. and Smith, H. (1998), *Applied Regression Analysis* (3rd ed.), New York: Wiley.
- [7] Freund, R. J. and Littell, R. C. (2000), *SAS System for Regression* (3rd ed.), Cary, NC: SAS Institute Inc.
- [8] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective* (7th ed.), Upper Saddle River, NJ: Pearson Education.
- [9] Hosmer, D. W. and Lemeshow, S. (1989), *Applied Logistic Regression*, New York: Wiley.
- [10] Johnson, R. A. and Wichern, D. W. (2007), *Applied Multivariate Statistical Analysis* (6th ed.), Pearson International Edition.
- [11] Kleinbaum, D. G., Kupper, L. L., Muller, K. E. and Nizam, A. (1998), *Applied Regression Analysis and Other Multivariable Methods* (3rd ed.), Boston: Duxbury Press.
- [12] Littell, R. C., Milliken, G. E., Stroup, W. W., Wolfinger, R. D., and Schabenberger, O. (2006), *SAS for Mixed Models* (2nd ed.), Cary, NC: SAS Institute Inc.

- [13] Littell, R. C., Stroup, W. W., and Freund, R. J. (2002), *SAS for Linear Models* (4th ed.), Cary, NC: SAS Institute Inc.
- [14] Morrison, D. F. (1990), *Multivariate Statistical Methods* (3rd ed.), New York: McGraw-Hill.
- [15] O'Rourke, N., Hatcher, L. and Stepanski, E. J. (2005), *A Step-by-Step Approach to Using SAS for Univariate and Multivariate Statistics* (2nd ed.), Cary, NC: SAS Institute Inc.
- [16] Preacher, K. J., and Hayes, A. F. (2004), SPSS and SAS procedures for estimating indirect effects in simple mediation models, *Behavior Research Methods, Instruments, and Computers*, 36, 717–731.
- [17] Rencher, A. C. (1995), *Methods of Multivariate Analysis*, New York: Wiley.
- [18] Strokes, M. E., Davis, C. S., and Koch, G. G. (1995), *Categorical Data Analysis Using the SAS System*, Cary, NC: SAS Institute Inc.
- [19] 鍾惠民、吳壽山、周賓凰、范懷文 (民 95)，「財金計量」(修正版)，台北市：雙葉書廊。

註：請同學遵守智慧財產權觀念及勿使用非法影印教科書。