台北大學 統計學系 學士班
類別資料分析
Categorical Data Analysis
Spring 2010

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類別資料分析探討研究資料內主要的反應變數爲離散型隨機變數, 離散型隨機變數的機率分配通常是偏斜的離散分配, 變異數通常是平均值的函數, 常常必須考慮精確的抽樣分配, 在統計分析的考量, 必須不同於連續型隨機變數常見的常態分配. 類別資料分析包含許多統計分析方法, 常用來分析研究資料內反應變數爲分率 (proportion) 或計數 (count) 等資料. 類別資料常見於醫學研究資料, 例如, 疾病發生率, 疾病死亡率, 意外發生次數等等, 類別資料分析方法也常用在社會學, 心理學, 教育學, 市場調查等研究領域.

- Time: Wednesday, 1:30pm – 4:00pm

- Classroom: 商學大樓 2F13

- Class Home Page: http://web.ntpu.edu.tw/~cflin

- 助教: (開學後兩週內, 參見 Class Home Page)

- Textbook: A. Agresti (2007),
  An Introduction to Categorical Data Analysis, 2nd ed., John Wiley. (華泰書局).

- Office Hours:

  - Tuesday, 三峽, 8:30am–9:30am, 12:00noon–1:00pm (make appointment by e-mail first)
  - Wedneday, 三峽, 8:30am–9:30am, 12:00noon–1:00pm (make appointment by e-mail first)

- Evaluation, 期末調整前總分共 110 分.

  - 作業 (分組) 30%.
  - Mid-term Exam 25%.
  - Final Exam 25%.
  - 期末資料分析報告 (分組), 20%, 必須打字 (MS word 檔案), 內含使用資料與統計軟體程式.
  - 期末讀書報告, (分組), 10%, 必須打字 (MS word 檔案), 課本 Chapter 9, Chapter 10.
  - 上課不定時點名以及口試, 3-5 次, 沒有遲到補點名.
  - 作業每次分數 10 分, 必須打字 (MS word 檔案), 內含統計軟體程式, 每次上課前交出, 並上台報告.

– 作業遲交, 未交作業, 該次作業 −5 分.

– 作業抄襲, 第一次該次作業 −20 分, 第 2 次, 學期成績 0 分.

– 期末調整前總分 60 分 (含) 以上及格.

– 期末調整前總分 49 分 (含) 以下不及格.

– 期末調整前總分 50-59 分 (含), 依上課不定時點名, 每點名一次, 期末成計加 2 分, 若加分到 50 分 (含) 以上及格.

– 考試內容以上課例題與課後指定作業練習佔 70% 以上.

– 任何一次點名, 任何一次考試違反誠實原則者, 學期成績為 0 分.

學生責任

- 課前預習, 每週 2-3 小時.

- 上課準時出席, 專心聽講與發問.

- 課後複習與作業練習, 每週 6-8 小時.

- 每週上課前準時交作業, 作業可討論, 但須獨立完成, 不可互相抄襲.

Categorical Data Analysis

1. Introduction of Categorical Data

2. Inferencesfor One-sample, Two-sample Proportion

3. Classical One-way Table, Two-way Table, $R \times C$ Table

4. Introduction to Generalized Linear Model

5. Model for Binary Variables: Logistic Regression

6. Model Building

7. Poisson Regression and Loglinear Models

8. Models for Ordinal Variables

9. Multinomial Response Models

10. Models for Matched Pairs

11. Miscellaneous Topics of Categorical Data analysis

References

[1] A. Agresti (2007), *An Introduction to Categorical Data Analysis*, 2nd ed., John Wiley.

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[4] J. L. Fleiss (2003), *Statistical methods for Rates and Proportions*, 3rd. ed., John Wiley.

[5] M. E. Stokes, C. S. Davis and G. G. Koch (2000), *Categorical Data Analysis using the SAS System, 2nd ed.*, SAS Institute Inc. (not available in Taiwan)

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[8] J. S Simonoff (2003), *Analyzing Categorical Data*, Springer.

[9] Daniel A. Powers, Yu Xie and Daniel A. Powerw (1999) *Statistical Methods for Categorical Data Analysis*, Academic Press.

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