台北大學 統計學系 碩士班
類別資料分析 (Categorical Data Analysis)

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Categorical data analysis is the study of the distribution of discrete random variables, and is a loosely defined statistical term that encompasses variety of statistical technique for analyzing discrete data. Typically, the value of the discrete random variables are the number of proportion or the numbers of counts which are classified from a sample into one of several levels of a category. Examples of this discrete data arise in diverse field, especially, in medicine, sociology.

- Time: Monday, 1:00pm–4:00pm
- Classroom: 7F01
- 助教:
- Textbook: A. Agresti (2002),
  Categorical Data Analysis, 2nd ed., John Wiley.
- Office Hours: Monday, 10:00am–12:00n (make appointment by e-mail first)
- Evaluation
  - Homework 30%
  - 2 Mid-term Exam 40% (each 20%)
  - Final Exam 50% (cumulative)
  - 上課缺席 1 小時, 每次扣學期成績結算總分 1 分, 上課缺席 6 小時, 學期成績結算總分 0 分; 上課遲到 (上課鐘響比教師晚到 20 分), 算上課缺席 1 小時
  - 作業遲交, 該次作業 0 分, 未交作業, 每次再扣學期成績結算總分 2 分

學生責任

- 課前預習, 每週 1-2 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
- 每週上課前交作業, 上課不准寫作業, 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. One-sample, Two-sample Proportion
3. Classical One-way Table, Two-way Table, RxC Table
4. Muitinomial Distribution and Exponential Family
5. Theory of Generalized Linear Model
6. Model for Binary Variables: Logistic Regression
7. Model for Binary Variables: Probit and Extreme Value Models
8. Loglinear Models
9. Models for Ordinal Variables
10. Multinomial Response Models
11. Models for Matched Pairs
12. Miscellaneous Topics of Categorical Data analysis

Feel free to ask questions during class; your questions are an important part of this course. Few students are able to master the material without keeping up on a regular basis. I welcome you to the class and hope that you have an enjoyable and successful semester!

References

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[3] P. McCullagh and J. A. Nelder (1989), *Generalized Linear Models*, Chapman and Hall.

[4] J. L. Fleiss (1981), *Statistical methods for Rates and Proportions*, 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.

[6] M. Aitkin, D. Anderson, B. Francis and J. Hinde (1989), *Statistical Modeling in GLIM*, Oxford University Press.

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

[9] Erling B. Andersen (1994), *The Statistical Analysis of Categorical Data*, Springer.

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[11] C. J. Lloyd (1999), *Statistical Analysis of Categorical Data*, John Wiley.

[12] C. T. Le, (1998), *Applied Categorical Data Analysis*, John Wiley.

[13] D. Collett (2002), *Modeling Binary Data, 2nd ed.*, Chapman and Hall.

[14] D. W. Hosmer and S. Lemeshow (2000), *Applied Logistic Regression*, John Wiley.

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