Quantitative Research Methods 862002001 - Fall 2012

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Textbooks (* as required)

Agresti and Finlay (2009)*, Gujarati and Porter (2009); Wonnacott and Wonnacott (1990).1

Course Objectives

This course is designed primarily for graduate students who are interested in applying quantitative research methods to study world politics, international political economy, and other world politics-related events. This is also core course. I assume that you are already familiar with high school algebra and fundamental probability and probability distributions.

The purpose of this course is to provide students with better understanding of regression analysis. In the first part of this course we focus on descriptive statistics, hypothesis testing, and χ^2 test, followed by simple and multiple regression analyses. Some advanced quantitative skills such as limited dependent variables are covered in the final section if time is allowed.

Statistical Software Package

This course uses primarily Stata, and three versions are available for purchase: Small Stata, 6-month license, NT\$1,100; Small Stata, 1-year license, NT\$1,600; Stata/IC, perpetual license, NT\$6,000. Other programs such as SPSS and SAS are available via NCCU via iNCCU and install it on your lap-top/desktop. Using other packages such as R is also allowed.

UCLA Academic Technology Services' Statistical Computing is very helpful for you when doing term paper.

Course Outline and Grading

There will be weekly homework assignments (25%), two (2) in-class exams (50%, 25% of each), one (1) term paper (25%):

- 1 Homework assignments: There will be 10-12 assignments aimed at getting students familiar with statistical topics and the use of software. Each homework assignment is due by 13:00 the following Tuesday and is sent to TA directly. You are welcome to discuss homework with classmates, but must submit answers written on your own.
- 2 In-class exams are expected to hold in the ninth and seventeenth weeks, respectively.
- 3 Term paper: Each student should discuss potential topic(s) with the instructor no later than the fourth week. The term paper should be no more than 25 pages, double-spaced and *double-sided*. This paper length includes bibliography, footnotes, graphs and tables, and abstract. This paper is due by 17:00 of January 15, the last and final exam week of fall semester, and sent both hard and electronic copies to both the instructor and TAs, and also output, dataset and SPSS command to TAs electronically. The paper should be in the style of a peer-reviewed journal, such as *American Political Science Review*.

Your paper must be edited in the format of LATEX, a technical document-typesetting software.

¹I do not mind if you get an older version of copy as long as it has no substantive revision.

Academic Honesty and Class Conduct

Academic integrity and honesty is a very serious issue in the academic field. According to one definition, academic dishonesty includes "giving or receiving of unauthorized help in examinations or other assignments, plagiarism and other unacknowledged or undocumented use of source material, and forgery."²

Students who violate any definition of academic dis/honesty will be punished in accordance with the university policy: http://osa.km.nccu.edu.tw/xms/content/show.php?id=748, in addition to receive an F (read: zero). If you have any further question, for example, do not know if you are violating or have violated it, consult your instructor immediately.

Finally, it should be noticed that no makeup exams/late assignments and/or paper will be accepted, except for a very few conditions. These conditions include medical emergency, a death in the family, and quite frankly, very little else. In all cases, you will be expected to bring in proof. Each student is allowed to have only one (1) chance of arranging makeup exam. As well, if you need to set up an makeup exam, you will be still required to meet these conditions.

Class Schedule

Class schedule is subject to change without prior notice.

Week 01 (09/18): Organizational meeting and introduction to statistics and LATEX, Agresti and Finlay (2009, Chapter 1); King, Keohane and Verba (1994, Chapter 1), Oetiker et al. (2011)

Week 02 (09/25): MOFA Day, no class

Week 03 (10/02): Sampling and measurement, Agresti and Finlay (2009, Chapter 2)

Week 04 (10/09): Descriptive statistics, Agresti and Finlay (2009, Chapter 3)

Week 05 (10/16): Probability distributions, Agresti and Finlay (2009, Chapter 4)

Week o6 (10/23): Statistical inference: Estimation, Agresti and Finlay (2009, Chapter 5)

Week 07 (10/30): Statistical inference: Significance tests, Agresti and Finlay (2009, Chapter 6)

Week 08 (11/06): Comparison of two groups, Agresti and Finlay (2009, Chapter 7)

Week og (11/13): Analyzing association between categorical variables, Agresti and Finlay (2009, Chapter 8)

Week 10 (11/20): 1st in-class exam

Week 11 (11/27): Linear regression and correlation, Agresti and Finlay (2009, Chapter 9)

Week 12 (12/04): Introduction to multivariate relationships and Multiple regression and correlation, Agresti and Finlay (2009, Chapters 10–11), Kastner (2007)

Week 13 (12/11): Comparing groups: Analysis of variance (ANOVA) methods, Agresti and Finlay (2009, Chapter 12)

Week 14 (12/18): Combining regression and ANOVA: Quantitative and categorical predictors, Agresti and Finlay (2009, Chapter 13)

²CGU Student Services, Academic Honesty, http://www.cgu.edu/pages/1132.asp

Week 15 (12/25): Model building with multiple regression, Agresti and Finlay (2009, Chapter 14)

Week 16 (01/01): New year's day, campus closed

Week 17 (01/08): 2nd in-class exam

Week 18 (01/15): Paper due by 17:00

References

- Agresti, Alan and Barbara Finlay. 2009. *Statistical Methods for the Social Sciences*. 4th ed. Upper Saddle River, NJ: Pearson Prentice Hall.
- Gujarati, Damodar N. and Dawn C. Porter. 2009. *Basic Econometrics*. 5th ed. Boston, MA: McGraw Hill.
- Kastner, Scott L. 2007. "When Do Conflicting Political Relations Affect International Trade?" *Journal* of Conflict Resolution 51(4):664–688.
- King, Gary, Robert O Keohane and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, NJ: Princeton University Press.
- Oetiker, Tobias, Hubert Partl, Irene Hyna and Elisabeth Schlegl. 2011. *The Not So Short Introduction* to LAT_EX2ε. URL: http://tobi.oetiker.ch/lshort/lshort.pdf
- Wonnacott, Thomas H. and Ronald J. Wonnacott. 1990. *Introductory Statistics*. 5th ed. New York: Wiley.