

AGEC 5045/AGEC7144
應用選擇資料分析
Applied Discrete Choice Analysis
Department of Agricultural Economics, National Taiwan University

Syllabus

Instructor: Yau-Huo (Jimmy) Shr, 石曜合
Email: yhshr@ntu.edu.tw
Phone: 02-3366-2654
Office: 農綜館 213
Office Hours: TBD
Class Lectures: Fri 9:10 – 12:10 @ 博雅 409

Course Description

Discrete choice models (DCM) have been widely applied to study individual choice behavior problems in many fields such as economics, marketing, environmental management, and transportation. **This course will particularly focus on the methods and applications of DCM on topics in agricultural and environmental economics.** For example, how people choose their vacation destinations, select the ideal environmental programs/policies, and pick the food product they want.

The course first introduces the theories and framework of DCM, data collection for DCM, as well as how DCM has been applied in various disciplines. The course covers some of the fundamental discrete choice models (logit, nested logit, probit, and mixed logit) and includes lab sessions where students can learn how to analyze how people making choices using real datasets. The principle software used is R. The primary goal of the course is for students to gain hands-on experience in using discrete choice techniques for practical applications.

Prerequisites

Calculus b1 & 2 (Math1203 & 1204 or equivalent); Statistics 1 & 2 (AGEC2001 & 2002 or equivalent).

* Econometrics I & II (AGEC5003 & 5004 or equivalent) strongly recommended; Using Econometric Software (AGEC4012) or Data Analysis Methods and Software Applications (AGEC5042) recommended.

Basic Knowledge in R is beneficial. Students without any experience in R are strongly encouraged to consult with the instructor before the second week of the semester. Online materials will be recommended for preparation.

Course Materials

There is no required text book for this course, while the following books are recommended for reference.

Train, K. E. (2009). *Discrete Choice Methods with Simulation*, 2nd Edition. Cambridge University Press. (Available online at <https://eml.berkeley.edu/books/choice2.html>)

Kleiber, C., & Zeileis, A. (2008). *Applied Econometrics with R*. Springer Science & Business Media. (Available via NTU library eBooks)

Champ, P. A., Boyle, K. J., & Brown T. C. (Eds.) (2017). *A Primer on Nonmarket Valuation*, 2nd Edition. Dordrecht: Springer Netherlands. (Available via NTU library eBooks)

Course handouts, slides, and data will be made available at the course website by the instructor.

Course Requirements and Grading

Students are expected to attend normal class time lectures and lab sessions. In addition, students are expected to complete regular (bi)weekly homework assignments, a project proposal, a mid-term exam, and a final exam.

Students are encouraged to work collaboratively for the assignments, while each student is required to submit the assignments individually. However, the mid-term and final exam are required to work individually.

Students are expected to write a brief project proposal for an empirical choice analysis project. The proposal has to address the following: (1) what the research question is, (2) how the data can be collected, (3) the analytic framework and models, and (4) the expected findings and why the question and findings are interesting or useful. Students are strongly encouraged to meet with the instructor before the mid-term to discuss the proposal's topic. The proposal is due at the end of week 18's class (the final). The instructor will email the feedback for the proposal within 2 weeks after the due date.

The work outside of class is typically three to four hours per week. Grading for the class will follow the University's ranking and percentile score system.

- Homework Assignments (weighted equally): 60%
- Mid-term exam: 10%
- Final exam: 10%
- Project proposal: 20%

The instructor encourages feedback throughout the semester to make sure the course goals and students' expectations are being met.

Questions about Course Materials and Email Policy

I strongly encourage you to contact me before or after lecture or during office hours. I will make every attempt to respond promptly to questions through email, but I cannot guarantee that your questions will be resolved quickly. The best way to discuss any questions/concerns you may have is in person.

Late Assignments

Assignments will NOT be accepted after the due date unless prior arrangements have been made with the instructor. You must contact the instructor **through emails** prior to the due date and time with an explanation as to why you request an extension. It will be up to the instructor's discretion to grant such extension. A similar policy holds for **all exams**.

Course Outline

The instructor will try to stick to this schedule, but the schedule might deviate slightly to accommodate any extra time needed to cover the course materials.

Week	Topic	Assignment
Week 1	Course overview	
Week 2	No Class	
Week 3	Choice behavior and the analytic framework	
Week 4	Revealed preferences and choices	
Week 5	Stated preferences and choice	
Week 6	Logit model	Homework 1 assigned
Week 7	No Class	
Week 8	Nested Logit model	
Week 9	Mid-term exam	HW 1 due
Week 10	Choice data management	HW 2 assigned
Week 11	Choice data management	
Week 12	Mixed (random parameter) logit model	HW 2 due; HW 3 assigned
Week 13	Probit model	
Week 14	Revealed preferences in practice	HW 3 due; HW 4 assigned
Week 15	Stated preferences in practice	
Week 16	The endogeneity in DCM	HW 4 due
Week 17	Issues in choice models	
Week 18	Final Exam	Project proposal due