Choice modelling
for business and policy analysis

May – June 2020
Tuesdays 3 – 5 pm

Course Instructor

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Many aspects of business and policy impact individual agents, be they consumers, firms, governments, or other organisations. From pricing schemes that maximise firm profits, to tax incentives that prioritise societal goals, the success or failure of business strategies and government policies is often determined by prior understanding of the behavioural response of individual agents.

This is an applied econometrics course that will use theories of individual decision-making from microeconomics and psychology, and quantitative tools from the field of choice modelling, to describe, explain and predict how individual agents choose between a set of alternatives. Applications will be drawn from transportation and land use, public health, environmental economics, and consumer behaviour and marketing. Through case studies, participants will get a solid grounding in behavioural theory, and gain hands-on experience with model development and business and policy analysis.

By the end of the course, participants will be able to: (1) Critically analyze choice models as they come across them throughout their careers; (2) Employ choice modelling in their own research and profession; and (3) Become aware of cutting-edge substantive and methodological research topics in choice modelling.

The course is intended for HDR students at the University of South Australia, though other students can attend with instructor approval. The course should be of value to anyone interested in the quantitative analysis of human choice behaviour. Basic knowledge of probability, statistics and calculus, and some programming abilities are prerequisites.

The course will be conducted in two stages over a 2-month period. Each stage will comprise three modules and one case study. Each module will be roughly 2 hours long, with some homework. The first stage will be run in May over 3 weeks. If the response is sufficiently positive, the second stage will be run in June over 3 weeks.

SYLLABUS & SCHEDULE

Stage I

The first stage will focus on the binomial logistic regression model as a way to teach theory and methods for the development and application of choice models for business and policy analysis. Topics include model derivation, specification, identification, estimation and application to binary choice.

Module 1: Introduction to choice modelling	12 May, 3 – 5 pm
Module 2: Analysis of binary choice	19 May, 3 – 5 pm
Module 3: Model estimation and interpretation	26 May, 3 – 5 pm

Stage II

The second stage will introduce extensions to multinomial choice situations through the multinomial logit model, by far the most popular choice model used in practice; review advanced choice models that seek to overcome some of the limitations of the multinomial logit model; and discuss experiment design and data collection methods for the measurement of choice behaviour.

Module 4: The multinomial logit model	16 June, 3 – 5 pm
Module 5: Advanced discrete choice analysis	23 June, 3 – 5 pm
Module 6: Experiment design and data collection	30 June, 3 – 5 pm

REFERENCES

Ben-Akiva, M. E., Lerman, S. R., & Lerman, S. R. (1985). *Discrete choice analysis: theory and application to travel demand* (Vol. 9). MIT press.

Louviere, J. J., Hensher, D. A., & Swait, J. D. (2000). *Stated choice methods: analysis and applications*. Cambridge university press.

Train, K. E. (2009). *Discrete choice methods with simulation*. Cambridge university press. Available online for free.