Syllabus

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ECON 7026 is an applied econometrics course which focuses upon econometric problems for data which are
- 'limited', representing an "either-or" choice
- censored or truncated
- discrete time duration
- small counts with a large number of zeros

The nature of the dependent variable requires alternative estimation methodologies. There exist many alternative models for analyzing such problems. Among the course topics are:

- review of the probability foundations for limited dependent variables
- maximum likelihood techniques, numerical optimization, and hypothesis testing
- binary, multinomial, and ordered response models including
    o logit and probit
    o mixed and nested logit
    o ordered and sequential models
    o generalized threshold models
- endogenous regressors
- exogenous and choice-based sampling
- sample selection and discrete-continuous models
- discrete and continuous time duration models
- count models, including Poisson, negative binomial, and zero-inflated models

Honor Code – It is the responsibility of each student to follow GT's Academic Honor Code. Information on GT's Academic Honor Code can be found at http://www.honor.gatech.edu/index.php .

LEARNING GOALS FOR THIS COURSE

- To have a solid understanding of the probability models currently used for limited dependent variables
- To understand a solid knowledge of the statistical foundations of the probability models covered
- To understand how alternative sampling strategies for limited dependent variables
- To be able to empirically estimate and interpret limited dependent variable models
- To be familiar with various software programs for estimating limited dependent variable models
- To be able to use these models for hypothesis testing, forecasting, drawing policy inferences, and to clearly and concisely communicate the results

Course Evaluation
Grading - Your grade will be determined as follows:

Homework Sets	:	20%
Presentation	:	10%
Project	:	30%
Mid-Term and Final	:	40%
Total	:	100%

Homework – There will be approximate 8 homework sets. Each set will be worth 100 points.

Course TA: TBA

Paper – There is a required paper for the course. The paper is to be 13 – 18 pages in length, **excluding** title page, footnote page, and reference page. The paper is not to include any appendices. The paper must use one or more of the limited dependent variable models covered in class. The problem and the data are of your own choosing.

Text
Winkleman, R. and Stefan Boes. *Analysis of Microdata*. 2006. Springer: New York.

Non-Required References which are useful and may help clarify and/or extend the covered:
Cameron, C. and Trivedi, P. *Microeconometrics,* 2005. Cambridge University Press, NY.
Cramer, J.S. *Econometric Applications of Maximum Likelihood Methods*. Cambridge: Cambridge University Press, 1986.
Hilbe, Joseph M. *Negative Binomial Regression*. Cambridge: Cambridge University Press, 2008.
Hensher, David et al. *Applied Choice Analysis: A Primer.* Cambridge: Cambridge University Press, 2005.
J. Scott Long. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage Publications.
Louviere, J., Hensher, D., and Swait, J. *Stated Choice Methods: Analysis and Application*, Cambridge, UK: Cambridge University Press, 2000.
Train, Kenneth. *Discrete Choice Methods with Simulation*. Cambridge: Cambridge University Press, 2003.
Train, Kenneth. *Qualitative Choice Analysis*. Cambridge: The MIT Press, 1986.

Reading and Homework Assignments

Week 1	Microdata, introduction, regression and probability models	WB, Chapter 1
Week 2	Probability and probability distributions Maximum likelihood estimation	WB, Chapter 2, 3
Week 3	Maximum likelihood estimation	WB, Chapter 3
Week 4	Hypothesis testing, goodness of fit	WB, Chapter 3
Week 5	Binary response models	WB, Chapter 4
Week 6	Reading, endogenous regressors	TBA;WB, Chapter 4
Week 7	Sampling	WB, Chapter 4
Week 7	**Exam 1**	
Week 8	Multinomial response models – polychotomous logit, discrete choice logit, welfare analysis	WB, Chapter 5
Week 9	Readings	TBA
Week 10	Discrete-continuous models, mixed logit	WB, Chapter 5
Week 11	Mixed logit, ordered response	WB, Chapter 5
Week 12	Generalized threshold models, reading	WB, Chapter 6, TBA
Week 13	Sample selection, treatment effects	WB, Chapter 6
Week 14	Duration models	WB, Chapter 7, 8
Week 15	Count data models	WB, Chapter 8
Week 16	Reading	TBA
Week 16	**Presentations** **Paper Due**	