

CE615

Statistical and Econometric Methods II

The objective of this course is to solidify students' understanding of the material taught in CE614 (Statistical and Econometric Methods I) and to extend students' knowledge with the presentation of new model estimation techniques not covered in CE614. Specifically, we will undertake detailed assessment of simultaneous equations models (seemingly unrelated regressions and three-stage least squares), generalized extreme value models (nested logit models estimated by full information maximum likelihood), mixed logit models (to account for variations in parameters across the sample population), random parameter negative binomial and fully parametric duration models, models with fixed and random effects, and zero-inflated count data models.

Time and location: Fall semester, Tuesdays 5:30-8:30, in room CIVL 2118

Website: <http://bridge.ecn.purdue.edu/~flm/CE615.htm>. In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. These changes will be reported as soon as possible on the course website.

Course requirements:

- Empirical assignments. All involve data analysis with existing databases. Students will present a short presentation of findings after each assignment.
- Research critique. During the semester, each student will be asked to critique two methodological papers in any field of interest and present this critique to the class.
- Students will complete a research paper using the methods covered in the course.

Grade distribution:

Empirical assignments (30%), Research paper (30%), Final Exam (40%)

Mandatory Prerequisite:

CE614 - Statistical and Econometric Methods I

Required materials:

Text: Washington, S., M. Karlaftis, and F. Mannering (2011) Statistical and econometric methods for transportation data analysis, Second Edition, CRC Press, Boca Raton, FL.

Course contents

Lecture 1	Course introduction
Lecture 2	Seemingly unrelated regressions (Text chapter 5)
Lecture 3	Time Stability Three-stage least squares (Text chapter 5)
Lecture 4	Paper critiques I
Lecture 5	Paper critiques II
Lecture 6	Zero-inflated count models (Text chapter 11)
Lecture 7	Fixed and random effects models (Text chapter 14)
Lecture 8	Nested logit models with full information maximum likelihood (Text chapter 13)
Lecture 9	Mixed logit models (Text chapter 16)
Lecture 10	Random parameter count and duration models (Text chapter 16)
Lecture 11	Tobit models
Lecture 12	Paper critiques III
Lecture 13	Project discussions and issues
Lecture 14	Recent econometric applications I
Lecture 15	Recent econometric applications II