SYLLABUS
ECO 531: Advanced Econometric Models and Applications
Spring 2011

“Research is not good simply because it is mathematical or statistical, or because it makes use of ingenious machines. Research is good if it is significant, if it is fruitful, if it is consistent with established principles, or if it helps to overthrow erroneous principles”


Time/location: Tuesday and Thursday; 12:30-1:45 AM
Winslow 201

Prerequisites: ECO530 or permission.

Instructor: Hsiang-tai Cheng, Associate Professor
School of Economics
Office: 200 Winslow Hall
Phone: 581-3155
Email: hsiang-tai.cheng@umit.maine.edu
Office hours: Monday and Wednesday 9:00-11:00 am.
(Please email me to make an appointment)

Course Description:
The course provides an introduction to econometric techniques commonly used in applied micro-economics research. The course emphasizes applications by linking theoretical textbook readings on techniques with journal articles featuring applications of these techniques. The course provides students with applied econometrics research experience.

Expected Learning Outcomes:
Upon successful completion of this course, students will be able to:
(1) Understand how applied econometric techniques are used to test and advance economic theory;
(2) Effectively apply the contemporary econometric techniques covered in this course;
(3) Conduct econometrics analysis and make inference

Prerequisites: ECO 530 is a formal prerequisite. Students should have a good understanding of probability, statistics, calculus, matrix algebra.
Textbooks:

Additional Readings:
Readings will be assigned from the course texts and professional applied economics and statistical journals.

Software:
SAS and LIMDEP will be the primary course software packages.

Reading Assignments:
Students are expected to have completed the assigned reading prior to lecture.

Homework Assignments:
Homework assignments will involve applied econometrics research. These assignments require computer programming, analytical thinking, and communication skills. Late homework assignments will receive a grade of 0 (see absence/tardiness policy below for exceptions).

Grading:
Letter grades will be assigned based on the following class work: homework assignments (60%), mid-term exam (20%), and final exam (20%). Homework assignments will be weighted equally, with the final grade calculated as the mean of the individual assignment grades.

Class Attendance Policy:
You are expected to attend all class sessions and to be prepared for class.

Absence/Tardiness Policy:
If a student wishes to receive credit for a late homework, its tardiness must be authorized. If illness is the reason for a late homework, please submit written documentation of this illness from the health center or a doctor to the instructor.

Disability Policy:
If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Director of Disability Services at in East Annex 123, 581-2319, as early as possible in the term.

In the event of disruption of normal classroom activities due to an H1N1 swine flu outbreak, the format for this course may be modified to enable completion of the course. In that event, you will be provided an addendum to this syllabus that will supersede this version.
Tentative Course Outline
(Note that this is tentative and may be revised as semester progresses. Extra references will be provided in class)

Review of Least Squares
(a) General linear statistical model (GHJ, Ch. 9)
(b) Inference in the general linear model (GHJ, Ch. 10)
(c) Large sample theory (GHJ, Ch. 14)
(d) Linear model with a general error covariance matrix (GHJ, pp. 477-482)
(e) Generalized Least Squares (GHJ, Ch. 15, section 15.2.4; Ch. 16, section 16.3)

Nonlinear Least Squares and Maximum Likelihood Estimation
GHJ: Chapter 22

Dichotomous Choice (Binary Probit and Logit)
GHJ: Chapter 23
K: Chapter 16, section 16.1

Polychotomous Choice (Multinomial Probit/Logit, Conditional Logit)
K: Chapter 16, section 16.2
Polychotomous Choice (Ordered Response Model)

K: Chapter 16, section 16.3

Count Data Models
K: Chapter 16, section 16.4

Limited Dependent Variables
K: Chapter 17

Univariate Time Series Analysis
GHJ: Chapters 20
K: Chapter 19 and 20

Spatial Economics