Department of Economics
University of Maryland

Spring 2015

ECON 422 – Econometrics I
Section 0101
Course Syllabus

Professor: John C. Chao
Office: Tydings Hall, Room 3141
Office Hours: Tues 11:00am -12:00noon and Thurs. 1:00-2:00pm, or by appointment
Telephone: (301) 405-1579
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Lecture:

TuTh 9:30am – 10:45am, Tydings Hall, Room 2108

Course Description:

Economics 422 introduces students to regression methods for analyzing data in economics and related areas. This course emphasizes both the theoretical and the practical aspects of statistical analysis, focusing on techniques for estimating econometric models of various kinds and for conducting tests of hypotheses of interest to economists. The goal is to help students develop not only an understanding for the advantages and disadvantages of different estimation and test procedures but also the ability to carry out and to critique empirical studies in economics and related fields, which are typically conducted using regression methodologies.

Prerequisites:

Students are assumed to have taken one course with a minimum grade of C- from (Econ 325, Econ 326) and one course with a minimum grade of C- from (Stat 400, Econ 321). It is expected that students are familiar with such basic probability and statistics concepts as random variables, probability distribution, independence and correlation, expected value and variance, hypothesis testing and confidence interval, and basic estimation procedures. Some calculus will also be taken as common knowledge.

Required Text:

(SW) Stock, J.H. and M. W. Watson (2010). *Introduction to Econometrics*, 3rd Edition, Addison-Wesley (ISBN-13: 978-0138009007).

Other References:

(AP) Angrist, J. D. and J.-S. Pischke (2015). *Mastering Metrics*. Princeton University Press. (ISBN: 978-0-691-15284-4)

(D) Devore, J. L. (2011) *Probability and Statistics for Engineering and the Sciences*, 8th Edition, Thomson (ISBN: 978-0538733526).

Gujarati, D. (2002). *Basic Econometrics*, 4th Edition, McGraw Hill.

(H) Hamilton, L. (2003). *Statistics with STATA*, Duxbury Press. (ISBN-10: 0534997562).

Hogg, R.V. and E. A. Tanis (2000). *Probability and Statistical Inference*, 6th Edition, Prentice Hall.

Maddala, G. S. (2001). *Introduction to Econometrics*, 3rd Edition, John Wiley & Sons.

Mirer, T. W. (1995), *Economic Statistics and Econometrics*, 3rd Edition, Prentice Hall.

Pindyck, R.S. and D.L. Rubenfeld (1997). *Econometric Models and Econometric Forecasts*, 4th Edition, McGraw Hill.

(W) Wooldridge, J. (2008). *Introductory Econometrics: A Modern Approach*, 4th Edition, South-Western College Pub. (ISBN-10: 0324581629; ISBN-13: 9780324581621)

Grading Policy and Expectations of Students:

1. The final grade will be based on homework assignments, a midterm, and a final exam. Both the midterm and the final exam will be closed book exams, and they consist of a mixture of multiple-choice questions along with theoretical and numerical problems. The schedule for the exams is as follows:

   Midterm: Thursday, March 26 during class

   Final Exam: Friday, May 15, 8:00am-10:00am (scheduled by the University)

2. No make-up will be given for either the midterm or the final, except in the cases of illness (supported by documentation of the illness, signed by a health care professional), religious observance, participation in University activities at the request of the University authorities, or compelling circumstances beyond the student's control. Homework assignments, the midterm, and the final exam constitute the "major grading events" in accordance with the University's policy on excused absences.

3. Please do not disrupt class for your fellow students by talking in class, using a cell phone, or typing text messages. If you happen to arrive late to class, please seat yourself quietly in the back and avoid walking to the front of the classroom.

4. Four problem sets, consisting of some combinations of theoretical and empirical (computer) exercises, will be assigned during the semester. Problem sets are due by the end of class on the following dates:

   Problem Set 1: Tuesday, February 24
   Problem Set 2: Tuesday, March 10
   Problem Set 3: Thursday, April 2
   Problem Set 4: Tuesday, May 5

   Problem sets will be posted on the course web page (URL: econweb.umd.edu/~chao/Teaching/Econ422/index.html) at least two full weeks before they are due. Late submissions of homework assignments are not accepted unless the student can present convincing evidence in support of a legitimate excuse. Homework assignments are designed to help

students learn the material and to serve as practice for the exams. Students are encouraged to work together on problem sets, but each student should turn in his or her own version of the assignment.

5. Your course grade will be computed using the following formula:

   Grade = (.20)(average of the problem set grades) + (.35)(midterm grade) + (.45)(final exam grade)

Computing Software:

The statistical software package for this course is STATA, which is available in BSOS labs at LeFrak Hall, but you are welcome to use other packages such as SAS, SPSS, Eview, or TSP for the problem sets if you like.

Academic Integrity:

Academic integrity is a foundation for learning. The University has approved a Code of Academic Integrity available on the web at http://www.president.umd.edu/policies/iii100a.html. The Code prohibits students from cheating on exams, plagiarizing, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents, and forging signatures.

Students with Disability:

Students with disabilities are required to inform me (the instructor) of their needs at the beginning of the semester. I will then consult with Disabilities Support Service (301-314-7682) to determine what the appropriate academic accommodations will be.

Course Evaluations

Students are encouraged to submit course evaluations through CourseEvalUM (www.courseevalum.umd.edu).

Course Outline and Reading List:

I. Introduction and Overview

(SW) Chapter 1

II. Review of Probability and Statistics

(SW) Chapters 2 and 3

III. Linear Regression Model

A. Simple (Bivariate) Regression Model

(SW) Chapters 4 and 5

B. Multiple Regression Analysis: Estimation

(SW) Chapter 6

C. Multiple Regression Analysis: Hypothesis Testing and Confidence Intervals

(SW) Chapter 7

D. Multiple Regression Analysis: Nonlinear Regression Functions and Further Issues

(SW) Chapters 8 and 9

IV. Simultaneous Equations Models and Instrumental Variables Estimation

(SW) Chapters 12

V. Regression with Panel Data
(SW) Chapter 10

VI. Regression with a Binary Dependent Variable
(SW) Chapter 11

VII. Experiments and Quasi-Experiments
(SW) Chapter 13