Syllabus

ECON 423: Econometrics II Winter 2018

Lecture	MTuWTh 120-430pm in TYD 2111
Instructor	Kodjo Aflagah Office : Tydings Hall 3115A Email: aflagah@econ.umd.edu
Office hours	TuTh : 11:30 am – 12:30 pm or by appointment

Course Description:

Econometrics applies modern statistical methods to economic problems. It introduces techniques for estimating the effect of one or more explanatory variables on a variable of interest. Econometrics I introduces the linear regression model. In actual settings, many problems don't fall under the assumptions of the classical linear model. This includes discrete variables (labor market participation, decision on a phone's brand), variables that span over time (time series data and panel data), censored data and truncated variables (income, expenditures on specific goods).

This course will present some of the methods used in those settings, with an emphasis on the need for specific models for these specific settings, on the application of those methods and the interpretation of the results. The applications will be done using the statistical software *Stata*.

Pre-requisites: Minimum grade of C- in ECON422. **Restriction:** Must be in Economics Bachelor of Science program.

Textbook: Jeffrey Wooldridge (2013) Introductory econometrics – A modern approach. 6th edition. Cengage Learning.

The textbook is required for the course. It comes with almost 100 data-sets that are used as examples during the course and will be the basis of homework assignments.

Computer software:

The problem sets will contain empirical exercises that require the use of statistical software. There are a number of software packages suitable for this purpose. The main software used in the course is Stata. Stata commands will be covered and demonstrated during lectures. You could use alternatives to Stata. This includes SAS, of which a version is free of charge for students. Both Stata and SAS are available on computer labs on campus: https://bsos.umd.edu/oacs/computer-labs.

Other open sources (free) alternatives are Gretl (http://gretl.sourceforge.net/) and R (https://www.r-project.org/).

Additional resources:

The class web page on ELMS is the main channel that I will be using to communicate with the class. All materials related to the course (slides, problem sets, etc.) will be posted there as well.

Complementary literature:

Cameron, A Colin and Parvin K. Trivedi (2010): Microeconometrics Using Stata, Revised Edition, Stata Press.

Stock, James H. and Mark W. Watson (2006) Introduction to Econometrics, Second Edition, Addison-Wesley: Boston, MA.

W. Greene, Econometric Analysis, Prentice Hall. This is an advanced text (graduate level). In addition to the topics we will cover in class, it contains a number of additional topics that give you a flavor of the discipline. A good resource book.

J. Wooldridge, Econometric Analysis of Cross Section and Panel Data. This is a graduate course level text book that covers the material of this course in greater detail and at a more advanced level.

Assignments and grading:

	Grading	Dates
Problem set 1	10%	Assigned on Jan 4 Due Jan 8
Midterm	35%	Jan 11
Problem set 2	10%	Assigned on Jan 15 Due Jan 18
Final exam	45%	Jan 22

All problem sets are to be submitted in hard copy and in class.

Exam formats:

The midterm and final exams are closed book exams. All you need to bring to the exam is pen or pencil and a basic calculator. Any form of collaboration during the exams or use of unauthorized materials is strictly forbidden.

Collaboration on homework is allowed and encouraged. However, make sure you write up your answers individually (i.e. don't copy some else's homework verbatim).

Policies:

A full description of policies regarding academic integrity, code of student conduct, sexual misconduct, discrimination, accessibility, attendance, absences or missed assignments, students right regarding undergraduate courses, official UMD communication, mid-term grades, complaint about course final grades, copyright and intellectual property, final exams and course evaluations , and campus resources are available at: http://ugst.umd.edu/courserelatedpolicies.html.

The University has adopted email as the primary means for sending official communications to students. I prefer to be contacted via email for any academic issue. I will do my best to respond in timely manner. My reaction to your mails will be delayed when received outside business hours. You MUST indicate in the object of your mail the name of the course and sign your email with your full name.

This lecture class and all other materials are copyrighted and they may not be reproduced for anything other than personal use without written permission

Attendance:

By signing up for this class you agree to exam formats, course requirements and timing of exams and due dates of work to be handed in. Attendance in all lectures is expected.

University policies excuse the absences of students for

- illness,
- religious observances,
- participation in University activities at the request of university authorities and
- compelling circumstances beyond the student's control.

The University's policy on religious observance and classroom assignments and tests states that students should not be penalized for participation in religious observances and that, whenever feasible, they should be allowed to make up academic assignments that are missed due to such absences. Students are responsible for notifying the instructor of projected absences within the first two weeks of the semester. This is especially important for final examinations.

Multiple or prolonged absences, and absences that prevent attendance at a major scheduled grading event as noted under course requirements, will require either (i) written documentation from an appropriate health care provider/organization or (ii) advance notice in writing of a religious observance or University-sanctioned event. Make up exams and extensions of deadlines will be given only when the student has a University-recognized excused absence. If a major scheduled grading event must be missed for a legitimate reason, the student must contact the instructor and the director of undergraduate studies (Dr. Cindy Clement) prior to the scheduled date and time.

If a major scheduled grading event is missed due to unforeseen circumstances on the scheduled date, the student (or family member/friend in extreme circumstances) must contact the instructor within 24 hours of the missed exam/deadline. Official documentation of the excuse must always be provided. If a

student misses an exam or assignment deadline for any unauthorized reason or cannot provide acceptable documentation, he/she will receive a grade of zero.

Students with disabilities

UMD guarantees appropriate accommodations for students with disabilities. Any student with a disability needing accommodation must obtain documentation from the Disabilities Support Service in 0106 Shoemaker Building, 301 314 7682. In such cases, inform me of your needs at the beginning of the semester. If you need further clarification, the link to DSS is http://www.counseling.umd.edu/dss.

Course outline:

The references are from the textbook.

Part 0 - Introduction to Empirical Questions and Data

1. Some examples of empirical questions: W 1.2
2. Causality: W1.3
2. Experimental versus Observational Data: W 1.3
3. Data Sources and Types: W 1.3

Part I - Review of the Linear Regression Model

1. The Simple Linear Regression Model: W 2.1, 2.2
2. Sampling Distribution of the OLS Estimators: W 2.5, Summary of Chapter 2
3. Hypothesis Tests and Confidence Intervals for the Linear Regression Model: W 4.2, 4.3, 4.5

Part II – Instrumental Variables Regression

1. Motivation: Omitted Variables in a Simple Regression Model: W 15.1
2. IV Estimation of the Multiple Regression Model: W 15.2
3. Two Stage Least Squares: W 15.3
4. Two Stage Least Squares with Heteroskedasticity: W 15.6

Part III – Panel Data Methods

1. Policy Analysis with pooled Cross-Sections : W 13.1,13.2
2. Two Period Panel Data Analysis: W 13.3, 13.4
3. Differencing Panel Data: W 13.5
4. Fixed Effects Estimation: W 14.1
5. Random Effects Estimation: W 14.2

Part IV – Binary Response Models

1. Logit and Probit Models for Binary Response: W 17.1
2. Specifying Logit and Probit Models: W17.1
3. Maximum Likelihood Estimation of Logit and Probit Models: W17.1 A C.4
4. Testing Multiple Hypotheses: W17.1
5. Interpreting the Logit and Probit Estimates W17.1

Part VI – Data with Corner Solution Responses

1. The Tobit Model: W 17.2
2. Interpreting Tobit Estimates
3. Specification Issues in Tobit Models

Part VI – Censored and Truncated Regression Models

1. Censored Regression Models: W 17.4
2. Truncated Regression Models: W 17.4
3. Sample Selection Correction: W 17.5

Part VII – Time Series Models (Time Permitting)