AGEC 5613

ECONOMETRICS I

2:00 – 3:15 p.m. T&TH

HOEC 106

Instructor Information

Instructor	Email	Office Location & Hours
Di Fang	difang@uark.edu	Agriculture Building 218B M W: 10:00am -12:00pm

General Information

Course Description:

Use mathematical statistics to formulate models and estimate relationships posited by economic theory or other theories of human behavior. Learn how such models can be used as tests of theory and the use of such models to forecast events and evaluate policies via simulation and counterfactual events. The linear model is examined with emphasis on the problems of statistical inference, structural change, multicollinearity, autocorrelation, heteroscedasticity, endogeneity, categorical regressors, distributed lags and time series regressions. Applied aspects of empirical model specification and interpretation are emphasized.

Prerequisite:

MATH 2043 and knowledge of matrix methods, (which may be acquired as a co-requisite), and (AGEC 1103 or ECON 2023) and (AGEC 2403 or AGST 4023 or STAT 2303 or WCOB 1033).

Class Attendance:

Students are expected to attend every class. I will not take attendance, but will give out quizzes randomly. Keep in mind that quizzes will be administered at any point throughout the class period, and only those who are present are eligible to take the quizzes. In the situations of emergencies and illnesses, the student is responsible for making timely arrangements with the instructor. Such arrangements should be made in writing (preferably via email) and prior to the absence. It is at the instructor's discretion to decide on the penalty of missing classes.

Expectation and Objectives:

Upon successful completion of the course, students are expected:

- to perform simple linear regression and multiple linear regression
- to understand the properties and issues of the Least Squares Estimator
- to perform hypothesis testing
- to understand limited dependent models and the Maximum Likelihood Estimator

- to be able to conduct an empirical project with a selected econometric model

Course Materials

Recommended Textbook (not required):

We will use a variety of texts. Copies of textbook reading will be sent to you prior to each class. Class notes are the heart of the instruction in this class.

- Jeffrey M. Wooldridge. Introductory econometrics: a modern approach. South-Western Cengage Learning, Mason, OH, 5th ed edition, 2012. ISBN 978-1-111-53104-1.
- Verbeek, Marno. A Guide to Modern Econometrics. Fourth ed. John Wiley & Sons. Chichester, England. 2012.

Computer software

We will use R to perform all the class exercises. It's got a steep learning curve, but is worthy of your time in the long run. R runs on Windows, Os X and Linix. It is free to download at:

https://cran.cnr.berkeley.edu/

R packages can be downloaded at: https://cran.cnr.berkeley.edu/ , or directly using the script *install. packages ("name of the package").* The R-bloggers is an excellent website to learn R by yourself and check out other people's projects: https://www.r-bloggers.com/how-to-learn-r-2/.

Reading Assignments

A reading list will be distributed. We will also read articles and manuscripts to illustrate the use of econometrics. Students are better off reading assignments before the class period.

Web Site Information

This course is being taught in a quasi-electronic mode and all materials--reading list, syllabus, homeworks and readings except for the textbook--will be on the campus Blackboard Learn system. This can be accessed from any computer in the world that has Internet access. To do this you first type in:

https://learn.uark.edu/webapps/login/

Then you would log in and go to AGEC 5613. Data sets that will be used in exercises and old exams will be on this server and you can download them at will. Problem sets and data sets will be sent to your uark.edu campus e-mail addresses as well. Course marks will be recorded in Blackboard so that you can verify that the marks are correct. Ignore the course grade information because Blackboard will not be programmed to compute that on an online, real-time basis.

Grading

According to the UA instructions for reporting final grades, they generally will reflect the following:

A – Outstanding achievement (90% and above)

B – Good achievement (80% - 89.99%)

C – Average achievement (70% - 79.99%)

D – Poor, but passing work (60% - 69.99%)

F – Failure, given for unsatisfactory work (any grade below 60%)

*A+ can be given to students with truly exceptional performances.

Grading Guidelines:

	Quantity	Points
Weekly Assignments (30 points each)	10	10*30=300
quizzes (40 points each)	5	5*40=200
midterm	1	150
final exam	1	150
individual project and presentation	1	200
total		1,000

*final grade may be curved depending on the overall performance of the class.

Additional Information and Resources

Devices Policy:

Please turn off or silence devices during class. Let us do our best to not let the notifications on our devices become a distraction for us in class.

Disabilities:

If you need to request reasonable accommodations for this class due to a disability, you must first register with the Center for Educational Access (CEA). The CEA will notify the instructor but the student still has the obligation to meet with the instructor to plan the procedures required for adequate accommodation.

Academic Dishonesty:

"Each University of Arkansas student is required to be familiar with and abide by the University's 'Academic Integrity Policy' which may be found at http://provost.uark.edu/ Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor."

Inclement Weather:

If the University is open, we will have class. As the instructor, I reserve the right to cancel class due to inclement weather. Students will be notified by email and Blackboard if this is the case. Please use your best judgment before getting on the road. See UA Inclement Weather Policy at http://emergency.uark.edu/inclement-weather/index.php

Emergency Procedures:

Many types of emergencies can occur on campus; instructions for specific emergencies such as severe weather, active shooter, or fire can be found at http://emergency.uark.edu

Severe Weather (Tornado Warning):

Follow the directions of the instructor or emergency personnel

Seek shelter in the basement or interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside

If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building

Stay in the center of the room, away from exterior walls, windows, and doors

Violence / Active Shooter (CADD):

If you hear shots or see weapons:

If you are outside and hear gunshots immediately seek shelter in another building or escape to a safe area away from the sounds of the gunshots. Call 911 immediately.

Trust your instincts! Lock the doors; cover door windows if possible. Set your cell phone on vibrate or silent.

If you are present where a shooter is active:

Avoid: Leave the area immediately. If necessary, break windows or glass to get out of the area. Run in the opposite direction of the disturbance or shots, cover your head with books or other items for protection. DO NOT stop running until you are in a safe area. If police officers are in the area, listen and comply with all of their commands. Raise your hands or keep them in plain sight so you are not perceived as a threat to the police.

Deny: If you choose to stay in your room. Do not leave until instructed to do so by a police officer. LOCK YOUR DOOR! Stay away from and below any window. Position furniture or other items in front of the door. Turn off the lights and call 911.

Defend: If the first two options do not work, defend yourself and those around you. Utilize any objects available to you to distract or interrupt the actions of the shooter.

Stay low to the ground and away from windows and doors.

Remain in a safe location until you receive instructions from police.

As soon as possible, call University Police at 575-2222 or dial 911

Give the police dispatcher as many details as possible about your location, the location of the individual with the weapon, or the location of the gunshots.

Include the number of persons involved, description of armed subject(s), weapons displayed, locations of victims, direction of travel, threats made, etc.

Remain calm.

Tentative Course Outline (subjective to change based on class progress)

Topic	**Week**	**Reading**
Introduction to Econometrics, math review, and R	1-2	Class notes and online materials
Simple Linear Regression	3	Book chapters and class notes
Properties of Least Square Estimator	4	Book chapter and class notes
Multiple regression and Issues with Least Square Estimator	5-6	Book chapter and class notes
hypothesis testing	7	Book chapter and class notes
Midterm	8	Book chapter and class notes
Instrumental variable and 2SLS	9-10	Book chapter and class notes
Time series data, trend, models, and testing	11	Book chapter and class notes
Critics of Empirical Papers	12	
Generalized linear models and Maximum Likelihood Estimator	13-14	Book chapter and class notes
Panel Model Analysis	15	Book chapter and class notes
Final exam	16	