Syllabus for AGEC 650
Application of Quantitative Analysis: Econometrics I, Spring 2019

	Instructor	**TA**	**Secretary**
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Class Schedule: MWF 10:30 -11:20pm Jan 07 – April 26, 2019 RAWLS 1071

Office hours: 1:30-2:30pm Mondays, with TA, or make an appointment with Dr. Wang

Course Description:
We will introduce linear and nonlinear regression techniques and applications with statistical inference to economic problems using non-experimental data. Specifically, this course will cover topics of principles of estimation, hypothesis testing, multicollinearity, dummy variables, heteroscedasticity, autocorrelation, general linear models, instrumental variables, panel data, and discrete dependent variables.

Delivery Methods:
Classroom lectures, computer lab sessions, and student project presentations

Learning Outcomes:
This course should prepare students to use relevant quantitative tools for problems they will face in graduate research and subsequent employment, and equip them with adequate background for higher academic degrees in economics and related fields. Students successfully completing this course with a grade of B or better shall have the skills of

(1) understanding and interpreting economic and business data with statistical methods;
(2) competently applying statistical regression analysis to real world economic data and interpret the results;
(3) using appropriate software package; and
(4) communicating in technical report writing and oral presentation.

Prerequisites:
STAT 301, ECON 511, MA223(or AGEC516) or higher level courses for the same subject. Authorized equivalent courses or consent of instructor may be used in satisfying prerequisites.

Text:
Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach. 6th edition*. . Cengage learning, Boston, 2016. (If using other editions, make sure the homework questions match.)

https://www.cengagebrain.com/shop/isbn/9781305270107

Grading:

Assignments 25%
First Exam (written) 25%
Second Exam (computer and written) 25%
Team Project 25%

Guaranteed grades: A- to A+: 87 - 100% B- to B+: 75 - 86.9%
C- to C+: 65 - 74.9% D- to D+: 50 - 64.9%
Curve (in the favor of students) may be applied at discretion of the instructor

Assessment and Project Methods:
Weekly graded assignments will focus on application of econometric methods. Some require the use of computer software to estimate statistical relationships using real world economic data, test hypotheses, compute confidence intervals, application of economic theory to specify models, interpret results, and draw inferences.

A major project will involve problem formulation, resolution of problems with real world economic data, testing hypotheses, drawing inferences, preparing a written report, and making an oral presentation.

Late assignments will not be accepted unless discussed with and agreed by instructor beforehand.

Topics

Review of prerequisites
- Math and Matrix Notations (Appendices A and D)
- Foundations of statistical estimation and inference (Appendices B, C)
- Simple linear statistical model (Chapter 2)

Regression
- Multiple Regressions, multicolinearity (Chapters 3-6)
- Dummy variables (Chapter 7)
- Heteroskedastic errors (Chapter 8)
- Time-serious analysis and forecasting (Chapters 10-11)
- Autocorrelated errors (Chapter 12)

Advanced Topics
- Panel data (Chapter 13-14)
- IV and two stage least square (Chapter 15)
- Discrete dependent variables (Chapter 17)
- Sample selection bias (Chapter 18)

COMMUNICATION

Please note that my primary out-of-class method of communication will be via email to your Purdue email address. It is your responsibility to check for mail on a regular basis. I recommend checking your Purdue email account at least once every 24 hours.

ACCESSIBILITY AND ACCOMMODATIONS

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

ACADEMIC INTEGRITY

University policy on academic dishonesty is clear: academic dishonesty in any form is strictly prohibited. Anyone found to be cheating or helping someone else cheat will be referred directly to the Dean of Students for disciplinary action. Penalties are severe and may include dismissal from the University. The risks associated with cheating far outweigh the perceived benefits. Academic dishonesty includes citing someone else's work as your own, using "cheat sheets" or sharing your answers with someone else. If you are unsure whether your planned action constitutes academic dishonesty, seek clarification from your instructor. Other information regarding your rights and responsibilities as a student is contained in the Purdue University Code of Conduct. Writing assignments for this course will be checked for originality using the iThenticate software.

CAMPUS EMERGENCIES

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 beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructor via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

Please review the Emergency Preparedness website for additional information. http://www.purdue.edu/ehps/emergency_preparedness/index.html