

**Syllabus for AGEC 650**  
**Application of Quantitative Analysis: Econometrics I, Spring 2017**

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**Class Schedule:** MWF 10:30 -11:20pm Jan 09 – April 28, 2017 KRAN G02

**Office hours:** 2:30-3:30pm Mondays, with TA Junhong Chen, at KRAN 626  
or make an appointment with Dr. Wang

**Course Description:**

We will introduce linear 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, panel data, and discrete dependent variables.

**Delivery Methods:**

Classroom lectures, computer demo sessions, and student project presentations

**Learning Objectives:**

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 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.* South-Western, New York, 2015. (5<sup>th</sup> or 4<sup>th</sup> editions are also acceptable, just make sure the homework questions match.)

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

**Evaluation of Student Performance:**

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 econometric 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, multicollinearity (Chapters 3-6)
- Dummy variables (Chapter 7)
- Heteroskedastic errors (Chapter 8)
- Time-series 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)

## COMMUNICATION

Please note that my primary out-of-class method of communication will be via email to your [Purdue](#) email address. I will not generally attempt to contact you at email addresses other than 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.

## SPECIAL NEEDS

If you have a disability that requires academic adjustments, please make an appointment to meet with me during the first week of classes to discuss your needs. Please note that university policy requires all students with disabilities to be registered with [Adaptive Programs](#) in the [Office of the Dean of Students](#) before classroom accommodations can be provided.

## 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 unusual 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. To get information about changes in this course visit the course home page, contact me by email or office phone.

To report an emergency, call 911. To obtain updates regarding an ongoing emergency, sign up for Purdue Alert text messages, view [www.purdue.edu/ea](http://www.purdue.edu/ea). There are nearly 300 Emergency Telephones outdoors across campus and in parking garages that connect directly to the PUPD. If you feel threatened or need help, push the button and you will be connected immediately.

If we hear a fire alarm during class we will immediately suspend class, evacuate the building, and proceed outdoors. Do not use the elevator. If we are notified during class of a Shelter in Place requirement for a tornado warning, we will suspend class and shelter in the basement. If we are notified during class of a Shelter in Place requirement for a hazardous materials release, or a civil disturbance, including a shooting or other use of weapons, we will suspend class and shelter in the classroom, shutting the door and turning off the lights.

Please review the Emergency Preparedness website for additional information. [http://www.purdue.edu/ehps/emergency\\_preparedness/index.html](http://www.purdue.edu/ehps/emergency_preparedness/index.html)