This course provides an introduction to the practice of econometrics. It provides coverage of the most important techniques of econometric estimation and hypothesis testing, addressing the use of both cross-section and time series data. Econometrics is the application of statistical method in the analysis of economic data. It is a vital skill in any field where it is difficult to run controlled experiments. Economic theory can often provide highly useful qualitative conclusions, but for quantitative results econometric modeling is necessary. Modern computer packages make the mechanics of econometrics (the application of various econometric techniques to actual data) quite easy. This course focuses on helping students develop an understanding of what they are doing, so that they can use such packages intelligently. We will study regression analysis and discuss the econometric issues arising from the nature of typical economic data. Students will also be exposed to applied econometric issues through computer based homework assignments, a modeling project, and the extensive analysis of empirical studies in class.

**PRINCIPAL TEXTBOOKS:**
*Introduction to Econometrics: A Modern Approach* by Jeffrey M. Wooldridge, 6th edition, Cengage Learning, 2016. MindTap is a required online tool and can be purchased directly with the e-book from the publisher at: [http://services.cengagebrain.com/course/site.html?id=1675095](http://services.cengagebrain.com/course/site.html?id=1675095) or through the bookstore.


**OTHER RECOMMENDED TEXT:**

**COMPUTER SOFTWARE:** STATA.
The economics lab has the software STATA that will be used for this class. We will have class in the computer lab every Thursday so that we can use STATA during our class sessions. Always carry with you the computer guide that I prepared.

**GRADING POLICY:**

I. **EXAMS:** There will be a midterm and a final exam. The midterm counts for 30% of your grade and the final counts for 40%. The final exam will be on Monday May 8, 1:30-3:30pm. The tentative date for the midterm is Thursday March 9th.

II. **COMPUTER ASSIGNMENTS:** We will have homework assignments and a modeling project. The homework assignments will count for 8% of your grade. The modeling project will count for 20%. For this project, you will have to collect data and prepare a
proposal (5%), do regression analysis (10%) and present your results in class (5%). In particular, on the last week of classes, each student or group of students working on a project will have to give a 15-minute presentation in class.

III. CLass participation: Class participation can give you an additional 5%. I will keep records of your activity in each class session to ensure that you will receive appropriate credit. Activities that disrupt the flow of the lecture, such as sending an e-mail during a lab session or typing your homework for another class will reduce your participation credit.

OFFICE HOURS: I will hold office hours every Tuesday 2:30-3:30 and Thursday 4:00-5:00. My office is in 425 Cate Center I. My phone number is 325-3083 and my e-mail is: georgiak@ou.edu. The TA for this course is Constant Yayi and he will hold office hours Mondays and Wednesdays 1:30-2:30. His office is in room 226 at CCD1.

TOPICS: The following is a list of topics we will cover in class.

I. Hypothesis Testing
   Review of the material from your Econ 2843 class

II. Simple Regression (Chapter 2 + notes)
   A. Correlation Analysis
   B. Linear Regression Model
   C. Least Squares Coefficient Estimations
   D. The Explanatory Power of a Linear Regression Equation
   E. Statistical Inference: Hypothesis Tests and Confidence Intervals
   F. Prediction

III. Multiple Regression- Estimation and Inference (Chapters 3, 4 and notes)
   A. The Multiple Regression Model
   B. Estimation of Coefficients
   C. Explanatory Power of the Multiple Regression Equation
   D. Confidence Intervals and Hypothesis Tests on Individual Regression Coefficients
   E. Tests on Sets of Regression Parameters
   F. Prediction
   G. Transformations for Nonlinear Regression Models
   H. Dummy Variables for Regression Models
   I. Multiple Regression Analysis Application Procedure

IV. Additional Topics in Regression Analysis (Chapter 6, 7, 8 and notes)
   A. Model Building Methodology
   B. Dummy Variables and Experimental Design
   C. Lagged Values of the Dependent Variables as Regressors
   D. Specification Bias
E. Multicollinearity
F. Heteroscedasticity
G. Autocorrelation

V. Time Series Analysis and Forecasting (Chapters 10, 11, 12 and notes)

A. Index Numbers
B. A Nonparametric Test for Randomness
C. Components of Time Series
D. Moving Averages
E. Exponential Smoothing
F. Autoregressive Models
G. Autoregressive Integrated Moving Average Models

VI. Advanced Topics (Chapter 13)

A. Pooling Independent Cross Sections across time
B. Policy Analysis with Pooled cross sections
C. Two-Period Panel Data Analysis
D. Policy Analysis with Two-Period Panel data
E. Differencing with more than two Time periods