Lincoln University

SPRING 2016

COURSE: **BA 366 – Econometrics** (Tuesdays 3:30 – 6:15 PM)
3 units (45 hours of lectures)

INSTRUCTOR: Igor Himelfarb, Ph.D. ihimelfarb@lincolnuca.edu

OFFICE HOURS: Before and after class and by appointment in room 407

TEXT: Faraway, J. (2014). Linear Models with R 2nd Ed. CRC Press.
ISBN-10: **1439887330**, ISBN-13: **978-1439887332**
Faraway, J. (2006). Extending the Linear Models with R. CRC Press.
ISBN-10: **158488424X**, ISBN-13: **978-1584884248**
Baltagi, B.H. (2011). Econometrics. 5th Ed. Springer
ISBN-10: **3642200583**, ISBN-13: **978-3642200588**

TOOLS: Students will be introduced to R and M*plus* programs. Excel will be used for data management.

CATALOG DESCRIPTION:

The course introduces students to a comprehensive treatment of econometric methods for linear models. Among topics covered are: the linear regression, linear simultaneous equations systems, maximum likelihood and instrumental variables estimation strategies, hypothesis testing. Different data and variables presentations and features are discussed. (3 units)
Prerequisite: BA 241 or BA 360

LEARNING OBJECTIVES:

Econometrics is the intersection of statistical techniques, business and finance. Econometrics will provide students with a set of tools that are useful for modeling financial/business data, forecasting, and testing beliefs about market behavior. Econometrics is a specialized area of statistics which deals with the measurement of economics and business data. It is broadly applied in business and industry. It requires the application of economics and business theories and use of dedicated statistical software. This application can easily be learned with the aid of

personal computers. The study of econometrics addresses the unique features of stochastic behavior which characterize Business and Economics. It involves the study of multiple linear regression and time series analysis and forecasting. Its methods are tailored to deal with the departure of the economic and business behavior from the standard models of regression analysis. In this class, we will start from univariate random variables and their distributions, will cover linear models and generalized linear models, hypothesis testing, and concepts of bias and risk. Students will be introduced to Constant Expected Return model and Portfolio Theory. Finally, students will be exposed to multivariate statistical concepts of principle component analysis (PCA), exploratory factor analysis (EFA) and confirmatory factor analysis (CFA).

INSTRUCTIONAL METHODS:

The emphasis will be on learning by solving problems. Every student is welcome to participate in intensive classroom activities. Reading and problem solving assignments will be given throughout the course. Homework will be assigned and solved during sections. Suring lectures, students will learn principles and concepts covered in the text as well as in various sources on relevant topics. There may be class discussions and group presentations by students on the project assignments during class.

CLASS ATTENDANCE:

Students are expected to attend class on a regular basis. Attendance is crucial to performing well in this course, as some of the material presented may not be found in the textbook. Further, the lecture and classroom demonstrations will emphasize and expand upon important topics found in the textbook. Thus, it is vital that you take thorough notes in class.

ASSIGNMENTS:

There will be a weekly homework assignment given out on Monday of each week. Students will have a chance to work on the homework during the week and the weekend, ask questions during the laboratory session with the teaching assistant or visit me during my office hours, and turn the assignment the following Monday in class. These assignments will typically consist of some theoretical exercises, conducting analyses on provided data and turning in a results report (write-up) describing the findings, but may include other questions. The purpose of the assignments will be to provide a medium through which you really learn the material. Students are welcome to work with other classmates on the homework, but it is expected that each student turns in his/her own, independently written, homework. Any indication that work was directly shared will not be tolerated and will result in a non-passing grade.
Please bring a ***hard copy*** of your ***typed and stapled*** homework assignment that has your name on it to class the day it is due. ***Please no e mailed assignments***. ***No late homework will be accepted!***

There will be a number of readings (mostly journal articles) assigned periodically in addition to the reading in the textbook.

In accordance with the university policy on cheating and plagiarism, any student who does not do his/her own write-up completely independently on any assignment will fail the assignment.

EXAMS:

There will be two exams — a midterm and a final. To assess your learning in this course, exam questions will be derived from the lecture and textbook. Topics covered in lecture will be of major emphasis on the exam, and should be the focus of your textbook readings, though there will be some test questions found in the assigned readings but not covered in the lecture. To avoid guessing, there will be no multiple-choice questions on the exams. Exams may include conceptual or theoretical questions, Excel output interpretations or questions that require simple calculations. On the day of the exam, remember to bring a non-graphing calculator (cell phone calculators are unacceptable). ***All exams are open books and open notes.***

QUIZZES:

To encourage attendance and to help students with assessment of their knowledge, there will be a set of unannounced quizzes given at the start of class. They will be based on lecture and any assigned reading. They will not be computational in nature, but rather conceptual questions intended to help students gauge how well they understand the material.

GRADING PLAN:

Percentage	Grade
90-100%	A
80-89%	B
70-79%	C
60-69%	D
below 60%	F

Weights	
Homework	20%
Quizzes and class participation	10%
Midterm	30%
Final	40%

CLASSROOM POLICY:

Please do not use personal computers, iPads or smart phones during the lecture. Unless you LaTeX, it is very hard to type up statistical formulas using keyboard. Please use pen and paper to take your notes. If you do need to text message or receive a call, please take it outside the classroom.

I am available and will do my best to help you learn and succeed. Questions and points of discussion are encouraged. I am also highly accessible for discussions if you wish to receive additional information or learn more about a certain topic or need help with data analysis. Please visit me during my office hours, or talk to me immediately after class, if you need study tips or additional help. No appointment is required for my office hours.

TENTATIVE CLASS SCHEDULE:

Week	Content
Week 1: January 19	Univariate Random Variables and Distributions
Week 2: January 26	Normal Distribution. Linear Function of Random Variables. Bivariate Distributions.
Week 3: February 2	Descriptive Statistics. Hypotheses testing. Parametric Tests.
Week 4: February 9	Linear Models: Introduction.
Week 5: February 16	Linear Models: Model Specification. Estimation
Week 6: February 23	Linear Models: Assumptions, Diagnostics, Remedies.
Week 7: March 1	Linear Models: Diagnostics, Remedies (con-ed).
Week 8: March 8	Midterm.
Week 9: March 15	Spring Break.
Week 10: March 22	Generalized Linear Models: Introduction.
Week 11: March 29	Generalized Linear Models: Logistic Regression.
Week 12: April 5	Generalized Linear Models: Poisson Regression.
Week 13: April 12	Generalized Linear Model Specification. Estimation.
Week 14: April 19	Introduction to CER Model; Portfolio Theory. Bias.
Week 15: April 26	Review for Final Exam.
Week 16: May 3	Final exam.

Note: Instructor reserves the right to modify the content of this syllabus.

GOOD LUCK!

Syllabus Reviewed: 1/14/2016