

Math-Finance: Econometrics I
Fall, 2017; Roger Klein
Hill Center, Rm. 705: 9-12

,

TEXT: W. Greene, *Econometric Analysis*, Note: The chapter numbering below refers to the 8th edition. However, earlier editions will be fine for this course. There is also a more recent edition that will also be fine. We will supplement this text with handouts and assigned published papers. The handouts and lecture notes will be of primary importance. Lecture notes will be available on line and are more important than the text.

GOALS AND ASSESSMENT: The purpose of this course is to provide the foundation for doing applied empirical work. Grades will be determined as follows:

Problem Sets	20
Interm Exam	15
Midterm Exam	30
Final Exam	35

Remark 1: Problem Sets. The problem sets will directly count for 20% of your grade. In making this calculation, the problem set with the lowest score will be discarded. You are encouraged to work together on the assignments, but please provide your own write-up and be sure that you understand how to do the problems. A large fraction (about 80%) of each exam will include questions that are similar (though not identical) to those covered in problem sets and material emphasized in class. Consequently, it is essential that you understand how to do these problems. **You may and indeed are encouraged to ask questions before you turn in the problem sets. A key to doing well in this course is to ask questions both in and outside of class.**

Remark 2: Exams will be Open-book and open notes.

OFFICE HOURS: We will have weekly problem sessions to answer questions on course material and on the problem sets. If you have further questions that are not covered during these sessions, please contact me at

Email : rklein@economics.rutgers.edu

Phone : (848) 932-7543

Since each topic depends on previously covered material, I strongly encourage you to ask questions in and outside of class as we go along; do not wait until just before exams. As stated above, I encourage you to ask any questions that you may have about problem sets before they are due.

Course Outline

The following outline gives the topics that we will cover and the approximate dates for each topic. This outline is tentative in that we may spend more or less time on some topics than is indicated below.

- **INTRODUCTION AND REVIEW: Sept. 11**

- **LINEAR REGRESSION: Sept. 18, 25, Oct. 2**
 - **Estimation:**
 - * Lecture Notes/Handout
 - * Greene, Chapters 2-4
 - **Inference:**
 - * Lecture Notes/Handout;
 - * Greene, Chapter 5
 - **Dummy Variables:**
 - * Lecture Notes/Handout
 - * Greene, Chapter 6 (Sections 1-2)

Interm Exam October 9

- **BINARY RESPONSE : Oct. 9, 16**
 - * · Lecture Notes/Handout
 - Greene, Chapter 17

- **CATEGORICAL and TRANSFORMATION MODELS: Oct. 16, 23.**

- * · Lecture Notes/Handout

- **THE ENDOGENEITY PROBLEM: Oct. 30, Nov. 6**

- **The Linear Case: 2SLS , IV, and Control Estimators.**

- * · Lecture Notes/Handout
- Greene, Selected portions of Chapter 8

- **Endogenous Treatment and Nonlinear Models**

- * · Lecture Notes/Handout
- Newey, W.K., "Efficient Instrumental Variables Estimation of Nonlinear Models," *Econometrica*, July, 1990, v. 58, 809-837.

- **CENSORED REGRESSION & SAMPLE SELECTION: : Nov. 13, 20**

- * · Lecture Notes/Handout
- Greene, Chapter 19.3., 19.4

REVIEW SESSION: TBA
MIDTERM EXAM: Nov. 20

- **PARTIALLY LINEAR MODELS: Nov. 28**

- **HETEROSCEDASTICITY: Dec. 4,11**
 - **Correct OLS Covariance Matrix**
 - **GLS Estimation in a Semiparametric Model**
 - * · Lecture Notes/Handout
 - **A Score Test for Heteroscedasticity**
 - * · Breusch, T. and A. Pagan, "A Simple Test for Heteroscedasticity and Random Coefficients," *Econometrica*, 1979, 1287-1294.
 - Lecture Notes/Handout
 -
 -

- **PANEL DATA: AND TIME SERIES: Dec. 11,**
 - * · Lecture Notes/Handout

FINAL REVIEW SESSION: TBA
FINAL EXAM: TO BE SCHEDULED