

# Economics 1630: Econometrics I

**Professor Frank Kleibergen**

**Spring 2012**

Office: Robinson 209

Email: Frank\_Kleibergen@brown.edu (do not expect a (quick) response on evening/weekend emails)

Homepage: [www.econ.brown.edu/fac/Frank\\_Kleibergen](http://www.econ.brown.edu/fac/Frank_Kleibergen)

Office Hours: Tuesday 1.00-2.30 pm

Classes: Monday 8.30-9.50 am & Wednesday 8.30-9.50 am, Wilson Hall 302

Without permission, it is not allowed to enter class more than ten minutes late or to leave beforehand.

**Teaching Assistant Philipp Ketz**

Section I: Wednesday 12.00-12.50pm, Barus Holley Building, Room 161

Section II: Wednesday 7.00-7.50pm, Barus Holley Building, Room 161

Office Hours: Tuesday 2:30-4:00 pm Robinson Hall Basement

**Course Description:**

This course is the introduction to econometrics course offered by the Economics Department at Brown.

Prerequisites: EC 1110 or 1130, MA 520, and either APMA 1650, MA 1620 or ECON 1620. Computer (Stata) programming experience is helpful but not required.

**Required Textbook:**

(SW) Stock, J., and M. Watson. *Introduction to Econometrics*, 1-st, 2-nd or 3-rd Edition, Addison-Wesley.

The course will follow SW. The lectures will go into more depth about some aspects where we take advantage of the skills EC1630 students have acquired prior to taking the class. In the course we use basic probability theory as covered in Econ 1620 and APMA 1650. We also often use derivatives to optimize functions and compute the effects of a change of an independent variable on a dependent variable. A basic understanding of what a derivative is about is essential for the course. This understanding does not have to be very sophisticated, all that is needed is that you have no difficulty constructing the derivative of an elementary function. We also make use of vector/matrix algebra when we discuss the multivariate linear regression model. I will provide the essentials for this but please refresh/obtain your knowledge about it when you need to. Econometric theory combines results from probability theory, calculus and linear algebra so it is important to have an elementary understanding of these to be able to grasp what econometric theory is about.

The sections will review the material from the lectures and homeworks.

**Grading:**

Grades will be based on three exams (3×25%) and five homeworks (25%). The exams will be in class on **Wednesday, February 29-th; Wednesday, April 4-th** and **Wednesday, May 2-nd**. There is no final exam. Only in the case of a family emergency or medical absence (confirmed by the dean) will absence from the exams be allowed. Comments on graded exams/homeworks are to be made within one week of receiving the graded material.

**Homework:**

I encourage you to study in groups. Your homework assignments MUST, however, entirely be your own work. I will not accept identical homeworks turned in by different students. Homework assignments and transparencies will be put on my homepage under the courses section.

Homeworks are due at the beginning of class on the due date. Please turn homeworks in on time as late homeworks will not be accepted. The homeworks are tentatively scheduled for: HW1 2/15, HW2 3/7, HW3 3/21, HW4 4/11, HW5 4/25.

**No classes:** Monday February 20-th, Monday March 26-th and Wednesday March 28-th.

**Course Outline:**

The chapters (according to the 2-nd edition of the book) and sections are listed below. The material we will cover may be adjusted somewhat towards the end of the semester.

1. Introduction  
Chapter 1
2. Fundamentals: (probability, random variable, mean, variance, statistical model, estimation, inference)  
Chapter 2 & 3
3. Linear Regression with One Regressor  
Chapter 4, 5 & 17.1-17.4
4. Linear Regression Model with Multiple Regressors  
Chapter 6, 7 & 18.1-18.5
5. Nonlinear Regression and Specification Analysis  
Chapter 8 & 9
6. Panel Data  
Chapter 10
7. Logit and Probit Models  
Chapter 11
8. Instrumental Variables (IV)  
Chapter 12
9. Experiments and Quasi-Experiments  
Chapter 13
10. Time Series Models  
Chapter 14