Fall 2012   **Prof. Janet Kohlhase**
                                                                  University of Houston

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ECON 4365 – Section 12902
INTRODUCTION TO ECONOMETRICS
(class meets MW 2:30-4pm in D3 room E312)
(2nd revision version: Sept. 12, 2012)

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My Office: 201B McElhinney (M)
 hours: 4:30-5:30pm MW or by appointment 713-743-3799
 email: jkohlhase@uh.edu
 web pages: http://www.uh.edu/~kohlhase and http://www.uh.edu/blackboard/ (password access)

TA: Nadya Abramava, a second year economics PhD student, email nadya.abramava@gmail.com, and office 207 McElhinney (M). She will hold "event" office hours and will also be available by appointment. Event office hours will be scheduled for two hours on the days that homework is due and before exams, typically Mondays from noon-2pm.

Overview: This course may well be the most important and useful course offered in UH's undergraduate economics major! In the course, you will learn about basic econometric methods for analyzing data in economics and related disciplines. Given the data-intensive workplaces of today, these skills are in high demand. The course starts with a brief discussion of how to measure relations between two variables using covariance and correlation. We then move to a thorough treatment of the simple two-variable regression model. You will learn how it can be that (many) more than two points determine a line. You will learn how to interpret the economic meaning of estimated coefficients and how to do formal hypothesis testing about individual parameters. Then we move on to multiple regression methods where you will encounter more sophisticated hypothesis testing by doing "joint" tests. You will learn how important functional form is to the interpretation of quantitative relations. Then you will use your tools to learn how to critically evaluate empirical studies that you may encounter in your job or research. If time allows, we may treat other interesting topics such as limited dependent variables, panel data, instrumental variables or time series.

During the course you will learn and use the PC econometrics package, *Stata*, and to a limited extent, use Microsoft *Excel*. Most of the lecture notes will be posted on WebCT/Vista—it is your responsibility to print the notes out in a timely fashion. The ***binding prerequisite*** for the course is an introductory course in probability and statistics such as Econ 2370 (or permission from me). We make extensive use of concepts you learned in that course! The level of mathematics is elementary; for the most part we will use college algebra; we will not use matrix algebra. Calculus will be limited to parenthetical comments. I assume that you already have a working knowledge of Microsoft *Excel* but have no training in *Stata*.

Learning Outcomes:
--Students will attain, through lectures, discussion and readings, and demonstrate through homework assignments and exams, their knowledge about how to analyze quantitative data and how to draw inferences from statistical measures.
--Homework assignments will enable students to improve their empirical and analytical skills in the systematic framework of regression analysis.

Required Textbook:
> *(SW) **Introduction to Econometrics***, 3rd edition, by James H. Stock and Mark W. Watson, Pearson Addison-Wesley, 2011, ISBN-10: 0138009007. The third edition is the newest edition of the book and was used for the first time at UH in Spring 2011. Do <u>not</u> buy old editions (1st, 2nd) of the book; there are substantial changes in the new third edition.

Text website: The text website, supported by the publisher, contains the datasets and has a myriad of learning aids: http://www.pearsonhighered.com/stock_watson/.

Course Evaluation: 30%   Midterm (Wednesday October 17, 2012, in class)
                        40%   Final Exam (Monday December 17, 2012, 2-5pm)
                        30%   Homework sets

NO HATS ARE ALLOWED TO BE WORN DURING EXAMS. Exams will consist of short problems and will be closed-book, closed-note. You will be allowed one formula sheet (8-1/2" x 11") on the exams. Six or more homework sets will be assigned during the semester, and most will involve analyzing real-world data with the State statistical package. Completing the homework is an important part of the course, and will help you better understand the course material. You may form homework study-groups of **one to two** students.   You will turn in **one homework set per group**; all students in the group will earn the same score. Each homework set turned in must be a **unique and original** homework set consisting of only your specific group's work.

Course Policies: Attendance is expected. All exams and homeworks are mandatory. No late assignments accepted. Original hard copies (no xeroxes) of homeworks are required; no electronic submissions will be accepted. No makeup exams. Any absence from an exam or quiz for medical reasons must be documented by your physician. Any other absence from an exam must be approved by me *in advance* in writing. Unapproved absence from any exam counts as a zero. **All exams and homeworks are covered by the Honesty code of the University of Houston** (see Student Handbook at http://www.uh.edu/dos/publications/handbook.php).

STATA: *Stata* is a powerful statistical analysis software package (developed in College Station, Texas) used by many econometricians in academics, government, and the private sector. Public versions of *Stata* are available at selected locations on UH campus, but I **highly recommend** that you purchase your own personal copy (see below). From past experience, I anticipate highly congested computer labs near the homework due dates. Students registered in my econometrics class may use the eight computers in the Economics Department Undergraduate Computer Lab in room 208 E McElhinney (hours: M-Th, 8am-4:30pm, F 9am-2pm). The Department supports the most powerful *Stata* package, called *Stata SE* and the current version is version 12.

UH has an agreement called"GradPlan" with *Stata* that allows students to purchase various products at much reduced rates directly from *Stata*. The current version is *Stata 12* (released July 2011), and there are two packages that you should consider purchasing, *Small Stata* and *Intercooled (IC) Stata*. *Small Stata* can analyze up to 1,000 observations, whereas *Intercooled* can handle over 100,000. You can purchase a 6-month, annual or perpetual license. For more detail see the GradPlan website indicted below. I suggest that you buy *Small Stata* which should be able to handle most of the problems that I will assign in the course. The current pricing for 6-month licenses is $32 for *Small Stata* and $65 for *Intercooled (IC) Stata.*

Order *Stata* online: http://www.stata.com/order/new/edu/gradplans/gp-direct.html

Course Outline

TOPIC	Reading in SW3e
1. Introduction	ch. 1, parts of chs. 2 & 3
2. Regression with a Single Regressor (bi-variate regression)	ch. 4
3. Hypothesis Tests with a Single Regressor	ch. 5, parts of chs. 2 & 3
4. Regression with Multiple Regressors (multiple regression)	ch. 6
5. Hypothesis Tests in Multiple Regression	ch. 7
6. Nonlinear Regression Functions	ch. 8
7. Evaluating and Conducting Regression Studies	ch. 9

Additional topics if time permits:

8. Limited Dependent Variables	ch.11
9. Regression using Panel Data	ch.10
10. Instrumental Variables	ch. 12
11. Time Series	ch. 14