

Spring 2009

Prof. J. Kohlhase
University of Houston

ECON 4365 -- Sections 15262 & 24882
INTRODUCTION TO ECONOMETRICS

(section 15262 meets MW 1-2:30pm C113) (section 24882 meets MW 2:30-4pm C113)

My Office: 201B McElhinney (M)
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Regular Office Hours: TTh 2:00pm-3:00pm and by appointment
Occasional Office Hours: days Econ 4365 homework is due and before exams, 11:30am-12:45pm

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, and instrumental variables.

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: You may choose between the “regular edition” and “the brief edition” of the econometrics textbook by James H. Stock and Mark W. Watson (SW). The “regular edition” covers more topics and is suggested if you wish to study econometrics beyond this course.

(*regular*) *Introduction to Econometrics*, 2nd edition, Pearson Addison-Wesley, 2007, ISBN-10: 0321278879. Do NOT buy the 1st edition of the regular book dated 2003.

(brief) *Introduction to Econometrics, Brief Edition*, 1st edition, Pearson Addison-Wesley, 2008, ISBN-10: 0321432517.

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

Course Evaluation:

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| 30% | Midterm (Wednesday March 11, 2009, in class) |
| 40% | Final Exam dates differ by registered section (section 15262 (1-2:30pm) Monday May 11, 2009, 2-5pm) (section 24882 (2:30-4pm) Wednesday May 13, 2009, 2-5pm) |
| 30% | Homework sets |

You may attend lecture in either time slot, but you must take your exams in your registered section. The 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. About six homework sets will be assigned during the semester, and most will involve analyzing real-world data. 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 three** students. These groups may be composed of students in both sections. 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: 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 available 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 six computers in the Economics Department Undergraduate Computer Lab in room 208 E McElhinney (hours: M-F, 9am-5pm). The Department supports the most powerful *Stata* package, called *Stata SE* and the current version is version 10.

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 10* (released June 2007), 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 an annual license or a perpetual license. For more detail see the GradPlan website indicated 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 pricing for annual licenses is \$48 for *Small Stata* and \$95 for *Intercooled (IC) Stata*.

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

Course Outline

| TOPIC | Reading in SW, both eds. |
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| 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, ch.10(brief edition) |

*Additional topics if time permits:***Reading in SW regular edition**

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| 8. Limited Dependent Variables | ch. 11 |
| 9. Regression using Panel Data | ch. 10 |
| 10. Instrumental Variables | ch. 12 |