

Spring 2008

Prof. J. Kohlhase
University of Houston

ECON 4365

INTRODUCTION TO ECONOMETRICS—REVISED TO SHOW NEW ROOM
(Section 19980, MW 1:00-2:30pm meets in 115 McElhinney Hall, changed from 117M)

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/webct> (use Vista; password access)

TA: Mayank Gautam, 242 McElhinney (M), 713-743-3819, mgautam@uh.edu
Regular office hours: Tuesday 12:30-2:30pm
Special office hours: the day homeworks are due and day of exams (M or W) 11:00am-1:00pm

Class:

About: 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, instrumental variables, and panel data.

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.
- Students will be able to use statistical and econometric terminology appropriately and correctly.

Textbook: James H. Stock and Mark W. Watson (SW), *Introduction to Econometrics*, 2nd edition Addison-Wesley, 2007, ISBN 0-321-27887-9 (required). Do NOT buy the 1st edition, 2003.

Text website: The text website for the second edition contains the datasets and has a myriad of learning aids: http://wps.aw.com/aw_stock_ie_2.

Course Evaluation: 30% Midterm (Monday March 3, 2008, in class)
40% Final Exam (Wednesday May 7, 2008, 2-5pm)
30% Homework sets

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"). About five-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 up to **three** students or you may choose to work alone. You may work with students in either of my two sections of econometrics on the homeworks. 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 an **original** homework set consisting of your own (or your specific group's) work. You must take exams in the section where you are registered.

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 and <http://www.uh.edu/dos/hdbk/acad/achonpol.html>).

STATA: *Stata* is a powerful statistical analysis software package (developed in College Station, Texas) used by many econometricians in both academics and the private sector. Public versions of *Stata* are available 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 has recently purchased the most powerful version of *Stata*, called *Stata SE*.

UH has a site license for *Stata* that allows students to purchase various products at much reduced rates under the *Stata's* "GradPlan." The current version is *Stata 10* (released June 2007), and there are two variants 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 |
|---|----------------------------|
| 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 Regression Studies | ch. 9 |

Additional topics if time permits:

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