University of Colorado at Boulder
Department of Economics
Econ 4818 - Introduction to Econometrics
Professor Carlos Martins-Filho

Office. Economics Building 105.

Meetings. MWF 11:00 AM - 11:50 AM, ECON 117.

Office hours. W 3:00 PM - 4:30 PM. For appointment send an email to carlos.martins@colorado.edu.

Prerequisites. Econ 3070 and Econ 3818.

Class URL. http://spot.colorado.edu/~martinsc/ECON_4818.html.

Course description and objectives. This course has two main objectives: 1) introduce you to estimation and testing for the multivariate linear regression (MLR) model under classical assumptions; 2) consider the estimation and testing of the MLR model when some of these classical assumptions are violated. Our emphasis will be on the theoretical aspects of estimation and testing with a secondary interest on applications and empirical questions.

Grades. Your course grade will be determined by two midterms and a final examination. I will assign homework sets every week. Answering these homework questions correctly is critical for successful performance on the midterms and final examinations. The homework questions will not be graded, but you must return your answers to me by the specified due dates. Failing to do so will result in a 5 percent reduction on your **course grade** for each homework set (the penalty will not exceed 50 percent). The homework sets will be posted on the class website given above. The table below lists all evaluations, provides dates, and points.

Evaluation	Points	Date and time
midterm 1	25 points	02.29, 11:00 AM - 11:50 AM
midterm 2	25 points	04.13, 11:00 AM - 11:50 AM
final	50 points	05.04, 7:30 PM - 10:00 PM

Observations. Some of the questions in the homework sets will involve the use of a numerical software. The software we will use is called MATLAB. It is available at the computer laboratory in the basement of the Economics Building as well as in other computer laboratories on campus. MATLAB is easy to learn and is extensively documented. In addition, you might want to consult

Hanselman, D. and Littlefield, B., 2005, Mastering MATLAB 7. Pearson, Upper Saddle River, New Jersey.

It is one of many step-by-step manuals/guide to MATLAB that are commercially available. It is very easy to read and provides speedy access to the many resources this software offers.

Textbook.

Wooldridge, J., 2009, *Introductory econometrics.* South-Western Cengage Learning, OH.

Topics and Readings.

All readings, chapters and sections are from the textbook. It is also important to take good notes in class. Some of what I write on the blackboard is not in the book.

1. The nature of econometrics and economic data: chapter 1 and handout called **Econometrics**
2. Appendix A (especially differential calculus); Appendix B and C: review of probability and statistics; Appendix D: Elements of linear algebra .
3. The simple linear regression model and the least squares estimator: chapter 2.
4. Multiple linear regression (MLR) model and the least squares estimator: chapter 3
5. Hypothesis testing for the MLR model under normality: chapter 4.
6. Asymptotic properties of the least squares estimator and Hypothesis testing for the MLR model under non-normality: chapter 5.
7. Data scaling, dealing with data transformations, regressor selection, goodness-of-fit and prediction: chapter 6.
8. Regression with binary variables: chapter 7.
9. Accounting for heterocedasticity: chapter 8.
10. Functional form misspecification, regressor misspecification, measurement error: chapter 9, sections 9.1-9.4.
11. Instrumental variable estimation: chapter 15.

Important information.

- If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and `www.colorado.edu/disabilityservices`.
- Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, if the two midterm, final or homework due dates prevent/inhibit you from exercising your rights to religious observance, please inform me by August 28, 2009 so that reasonable accommodations can be made. See full details at `www.colorado.edu/policies/fac_relig.html`
- Students and faculty each have responsibility for maintaining an appropriate learning environment. Students who fail to adhere to such behavioral standards may be subject to discipline. Faculty has the professional responsibility to treat all students with understanding, dignity and respect, to guide classroom discussion and to set reasonable limits on the manner in which they and their students express opinions. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender variance, and nationalities. See polices at `www.colorado.edu/policies/classbehavior.html` and at `www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code`

- All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (`honor@colorado.edu`; 303-725-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at `www.colorado.edu/policies/honor.html` and at `www.colorado.edu/academics/honorcode/`.

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