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

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Office. Economics Building 105.

Meetings. MWF 2:00 PM - 2:50 PM, ECON 119.

Office hours. M 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 midterm and a final examination. I will assign homework sets every week. Answering these homework questions correctly is critical for successful performance on the midterm 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	30 points	10.03, in class
Midterm 2	30 points	11.10, in class
Final	40 points	12.17, 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 heteroscedasticity: chapter 8.

10. Functional form misspecification, regressor misspecification, measurement error: chapter 9, sections 9.1-9.4.

11. Panel data models: chapter 13

12. Instrumental variable estimation: chapter 15.

Important information.

- If you qualify for accommodations because of a disability, please submit a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail dsinfo@colorado.edu.

  If you have a temporary medical condition or injury, see Temporary Medical Conditions: Injuries, Surgeries, and Illnesses guidelines under Quick Links at Disability Services website and discuss your needs with me.

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  www.colorado.edu/policies/fac_relig.html.

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