

UNIVERSITY OF COLORADO AT BOULDER  
DEPARTMENT OF ECONOMICS  
ECON 4848 - APPLIED ECONOMETRICS  
PROFESSOR CARLOS MARTINS-FILHO

**Office.** Economics Building 105.

**Meetings.** Tuesdays and Thursdays (TTH) 2:00 PM - 3:15 PM, HUMN 1B45.

**Office hours.** Tuesdays and Thursdays from 5:00 PM - 6:00 PM or by appointment. For an appointment email [carlos.martins@colorado.edu](mailto:carlos.martins@colorado.edu).

**Class URL.** [http://spot.colorado.edu/~martinsc/Econ\\_4848.html](http://spot.colorado.edu/~martinsc/Econ_4848.html).

**Prerequisites.** Successful completion of ECON 3818 and ECON 3070 (recommended).

**Course description and objectives.** The main objective of this course is to equip you with basic undergraduate statistical/econometric knowledge and computational tools necessary to conduct basic empirical research. To that end we will:

1. study the classical linear regression model and extend it in selective ways (feasible GLS, IV estimation, limited regressands).
2. introduce you to the basic features of MATLAB, a computational software that can be used for statistical/econometric analysis.

**Grades.** Your course grade will be determined by two midterm and a final examination. In addition, there will be three homework sets. These homework sets will not be graded but you MUST turn in your answer by the due date. Failure to do so will result in a 10 percent reduction in your course grade for each homework you fail to turn in. Completion of the homework sets is critical for successful performance on the midterm and final examinations. If you find yourself incapable of answering the homework sets you will probably be incapable of answering the questions on the midterm and final examinations. Homework sets will be posted on the class website.

The table below lists all evaluations, provides dates, and points.

Evaluation	Points	Date and time
homework 1	-	available 09.15 and due 09.22
homework 2	-	available 10.20 and due 10.27
homework 3	-	available 11.29 and due 12.8
midterm 1	30 points	9.22
midterm 2	30 points	10.27
final	40 points	12.14, 1:30 PM - 4:00 PM

**Textbook.**

Wooldridge, J., *Introductory Econometrics - A Modern Approach*. South-Western Cengage Learning, OH.

**Software.** MATLAB is available in the computer laboratory in the basement of the Economics Building and in Humanities 1B45. Visit <http://webdata.colorado.edu/labs/map/> for a list of computer laboratories on campus where MATLAB is available.

There are multiple sources of information online about MATLAB. A particularly useful book for the basic features of the software is,

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

This 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. Another useful (freely available) step-by-step source is

- Frain, J. C., 2014, MATLAB for Economics and Econometrics: A Beginners Guide. Trinity College Economics Papers - Working Paper 0414.

### **Topics and readings.**

Chapters and sections are from the textbook. Handouts are available from my webpage in PDF format.

1. Econometrics and economic data: chapter 1 and handout called **Econometrics**.
2. The simple linear regression model and the least squares estimator: chapter 2, sections 2.1-2.6.
3. Multiple linear regression (MLR) model and the least squares estimator: chapter 3, sections 3.1-3.5, Appendix D, Appendix E.
4. Hypothesis testing for the MLR model under normality: chapter 4.
5. Data scaling, dealing with data transformations, regressor selection, goodness-of-fit and prediction: chapter 6.
6. Regression with binary variables: chapter 7, sections 7.1-7.4.
7. Accounting for heteroscedasticity: chapter 8, sections 8.1-8.4.
8. Functional form and regressor misspecification: chapter 9, sections 9.1-9.4.
9. Instrumental variables estimation and two-stage least squares: chapter 15, sections 15.1-15.5.

### **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](mailto: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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