Applied Statistics and Econometrics – (AC3)
September 2014 - December 2014

Last updated: September 30, 2014

Instructor:
Giuseppe Ragusa
gragusa at luiss dot it
Office hours: Thursday, 17:00-18:00

Teaching Assistants:
Siria Angino
(sangino at luiss.it)
OH: Monday, 13:00-14:00

Claudia Vittori
(cvittori at luiss dot it*)*
OH: Monday, 14:00-15:00

---

web page: http://gragusa.org/teaching/ase/

---

1 Course description

The aim of this course is to provide an introduction to the practice of econometrics. While both theoretical and practical aspects of econometrics will be covered, emphasis will be on intuitive understanding: concepts will be illustrated with real world applications on real world data.

2 Class website

The class website is http://gragusa.org/teaching/ase/. Please, be sure to visit the course web page regularly, as all materials for the class, occasional messages and any changes in the schedule will be posted there.

3 Textbooks

The textbook we'll be using is Stock and Watson's Introduction to Econometrics (3rd edition)

- Stock, James H. and Mark W. Watson, Introduction to Econometrics, Addison Wesley; 3rd edition, ISBN: 1408264331

Stock and Watson's *Introduction to Econometrics* is nicely organized and easy to read. However, no book is a perfect fit for everyone, and there are many other books you can look at for reference. A good example is Jeffrey Wooldridge's *Introduction to Econometrics*

- Jeffrey Wooldridge, Introductory Econometrics, South Western, fourth edition, 4th edition, ISBN: 0324788908

4 Examination and grading policies

You have two options:

- **(Standard option)** You take a final written examination on Friday, December 12th, 2014 and an oral exam on Tuesday, December 16th, 2014. Your grade will be the average of the two. You will be admitted to the oral exam if your mark on the written exam is higher than 18.
- **(Midterm option)** You take two written examinations, a ***midterm*** on October, 16th and a ***comprehensive final*** on Friday, December 12th, 2014. In this case your grade in the class will be calculated as the maximum between the average of your grades on the two written exams and you do not have to take the oral exam. For instance, let suppose you earned a 24 on the midterm. Then, if you earn a 20 on the final exam, your final grade will be $(24 + 20)/2 = 22$; if instead you earn a 29, then your final grade will be 29. Important: if you score less than 18 in the Midterm you will have to take both the written and the oral examinations described in the standard option. There is a catch.

- **Only students who have turned in all problem sets will be allowed to choose the midterm option.**

	Midterm Option		Standard Option	
	Midterm (Written)	Final (Written)	Final (Written)	Oral Exam
Dates	16/10/2014	12/12/2013	12/12/2013	16/12/2013
Weights	50%	50%	50%	50%
Total Grade	$\max\{(midterm + final)/2, final\}$			

No student will be allowed to take the exam on two subsequent exam dates. No exceptions will be made.

5 Problem sets

There will be a weekly Problem Set. They consist of a mix of theoretical and applied questions. You can work on these problem in group up to 4 students. However, each student must turn in its own write up of the solution to the problems.

6 Computer software

The software that will be used in this course is R. No prior knowledge of this software package is assumed. This package will be introduced in the TA Sessions. R is installed on all computers in A301 and A302. Since R is Open Source you can install it on your laptop or desktop. R is available for all major computing platforms: Windows, Mac OSX, and Linux. Platform specific installation help can be found at [here].

7 TA sessions

We have two very capable teaching assistants assigned to this course: Claudia Vittori and Siria Angino. They will lead a weekly session which will be held in the computer lab (A306). These classes are in important part of the course and regular attendance is strongly advised. During these sessions, the TA will review concepts introduced during lectures.

Below is TA sessions schedule:

TA	Where	When	Who
			Students whose name starts with the letter
Siria Angino	A301	Monday, *11:00-12:30*	**A – G**
Claudia Vittori	A302	Monday, *11:00-12:30*	**H – Z**

The TA sessions will start on September 29th, 2014.

On September 15th, 2014 and September 22nd, 2014 we will meet for regular lectures in room 407.

8 Learning outcomes you are expected to achieve

By the end of the course, students are expected to:

1. understand the statistical assumptions underlying regression analysis, and when they are appropriate;
2. be able to understand, interpret and evaluate data analysis performed by others;
3. be able to construct basic forecasting models;
4. become familiar with R.

9 Attendance

It is expected that all students attend the lectures and the TA sessions, be up to date with their readings and be prepared to participate fully in class. If you have problems mastering the material presented in class, please ask questions in class or during office hours. If you miss a class I expect that you will catch up the missed notes from another student. I will not be giving out my notes to any student.

10 Cheating and other forms of dishonesty

I have no tolerance for cheating. I regard academic dishonesty as a very serious offense. Students caught cheating during exams will fail the class and will be reported to the appropriate officer of the college.

11 Cell phone policy

The use of cell phones during class will be regarded as a sign of disrespect and it will be treated accordingly. Usage of cell phones during exams is strictly banned.

12 Lectures

A schedule of lectures, subject to change, appears below.

n.	date	topic
01	M 15 September 2014	Introduction and review of statistics
02	T 16 September 2014	Review of statistics I
03	Th 18 September 2014	Review of statistics II
04	M 22 September 2014	Bivariate regression I
05	T 23 September 2014	Bivariate regression II
06	Th 25 September 2014	Bivariate regression III
06	T 30 September 2014	Endogeneity and causality
08	Th 2 October 2014	Multiple regression I
09	T 7 October 2014	Multiple regression II
10	Th 9 October 2014	Nonlinear regression models I
11	T 14 October 2014	Nonlinear regressio nmodels II
12	Th 16 October 2014	Midterm
13	T 21 October 2014	Assessing regression studies
14	Th 23 October 2014	Panel Data I
15	T 28 October 2014	Panel Data II
16	Th 30 October 2014	Binary dependent variable I
17	T 4 November 2014	Binary dependent variable II
18	Th 6 November 2014	Instrumental variables regression I
19	T 11 November 2014	Instrumental variables regression II
20	T 18 November 2014	Instrumental variables regression III
21	Th 20 November 2014	Instrumental variables regression III
22	T 25 November 2014	Program evaluation I
23	Th 27 November 2014	Program evaluation II
24	T 2 December 2014	Program evaluation III