

Applied Statistics and Econometrics – (AC3) February 2016 - May 2016

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Instructor:

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Office hours: Tuesday, 11:45-13:00

Teaching Assistants:

Siria Angino

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OH: MON, 14:00-15:00

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OH: MON, 11:30-12:30

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 in May or June 2016 and a subsequent oral exam. Your grade will be the weighted average of the written exam, the oral exam and the PS grades. 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 April, 1st and a *Comprehensive Final* in May. 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 the Problem Sets, and the average of the grade on the final exam and the Problem Sets. In this case, you do not have to take the oral exam. For instance, let suppose you earned a 26 on the midterm and a 26 for the PS. Then, if you earn a 22 on the final exam, your final grade will be $0.45 \times 26 + 0.45 \times 22 + 0.1 \times 26 = 24.2 \simeq 24$; if instead you earn a 28 in the Final Exam, then your final grade will be $27.8 \simeq 28$. **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.**

Only students who have turned in all Problem Sets will be allowed to choose the Midterm option.

| | Midterm Option | | | Standard Option | | |
|-------------|---------------------------------------|----------------------|-----|--------------------|-----------|-----|
| | Midterm M (Written) | Final F (Written) | PS | Final (Written) | Oral Exam | PS |
| Dates | 01/04/2016 | | | | | |
| Weights | | | 10% | 50% | 40% | 10% |
| Total Grade | $\max\{0.45M + 0.45F, 0.9F\} + 0.1PS$ | | | | | |

No student will be allowed to take the exam on two subsequent exam dates. No exceptions will be made. “Taking the exam” means sitting and looking at the exam.

Students who decide to withdraw in June cannot take the exam in July.

5 Problem sets

There will be a weekly Problem Set. They consist of a set of multiple questions. Each student must hand in his/her own PS solution at the beginning of the Friday class. PS solutions must be handed in hard copy using the specific format provided. The PS solution paper must not be creased or folded. or the automatic checker will not grade the PS.

Problem Sets counts up to 10% of the final grade for the first exam dates (in May and June 2016). Submitting all PS before April 1, grants you the possibility to take the Midterm.

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 A306. 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 teaching assistants assigned to this course: Siria Angino and Giuseppe Brandi. They will lead a weekly session which will be held in the computer lab (A306). These classes are an 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 | | LUN <i>15:30-17:00</i> | A-L and ALL 3rd year students |
| Giuseppe Brandi | | LUN <i>13:00-14:30</i> | M-Z |

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 | T | 16 February | 2016 | Introduction and review of statistics |
| 02 | F | 19 February | 2016 | Review of statistics I |
| 03 | T | 23 February | 2016 | Review of statistics II |
| 04 | F | 26 February | 2016 | Bivariate regression I |
| 05 | T | 1 March | 2016 | Bivariate regression II |
| 06 | F | 4 March | 2016 | Bivariate regression III |
| 07 | T | 8 March | 2016 | Endogeneity and causality |
| 08 | F | 11 March | 2016 | Multiple regression I |
| 09 | T | 15 March | 2016 | Multiple regression II |
| 10 | F | 18 March | 2016 | Nonlinear regression models I |
| 11 | T | 22 March | 2016 | Nonlinear regression models II |
| 13 | T | 29 March | 2016 | Assessing regression studies |
| 14 | F | 1 April | 2016 | Midterm |
| 15 | F | 5 April | 2016 | Panel Data I |
| 16 | T | 8 April | 2016 | Panel Data II |
| 17 | Th | 12 April | 2016 | Binary dependent variable I |
| 18 | T | 15 April | 2016 | Binary dependent variable II |
| 19 | Th | 19 April | 2016 | Instrumental variables regression I |
| 20 | T | 22 April | 2016 | Instrumental variables regression II |
| 21 | T | 26 April | 2016 | Instrumental variables regression III |
| 22 | Th | 29 April | 2016 | Instrumental variables regression III |
| 23 | T | 3 May | 2016 | Program evaluation I |
| 24 | Th | 6 May | 2016 | Program evaluation II |