Statistical Computing (2019/20)

Content

This course is composed of two parts:

- **STATA/PYTHON**: practical implementation of micro-econometric methods, plus advanced data collection with Python

- **MATLAB**: practical implementation of time-series econometric methods

Attendance

Not compulsory, but strongly recommended. Active class participation is very much appreciated.

Final Exam

To pass Statistical Computing, students need a PASS in each part. A PASS in a single part will be kept on hold for the academic year only. There is one exam per session. See each section for specific rules and grading.

STATA/PYTHON module

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during the course: Tuesday 10.00-11.00
outside the course: by appointment

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Office hours:
during the course: by appointment
outside the course: by appointment

The aim of this course is to acquaint students with the basics of Stata (and its use for applied economics), and the basics of Pyhton (to work on webscraping tasks). The course will be mostly focused on micro-econometrics. Topics to be covered in the first semester (Gagliarducci) include: dataset management, descriptive statistics, graphics, loops and macros, linear regression, instrumental variable models (IV). Topics to be covered in the second semester (Rovigatti) include: scraping standard websites, extracting usable information and storing it in machine-readable format.

Course prerequisites and material

Students are supposed to be attending, or have attended, the course of Statistics and Econometrics, and having some knowledge of the concepts of lists and websites. Knowledge of html and programming best practices could be a plus, while being able to manage comma separated files is a prerequisite. In each class, we will compile a code on the scheduled topic (see below).

Final exam

PASS or FAIL. The final exam consists of a take-home assignment to be returned (via email) at least one week before the expected exam date

Suggested Text and Readings

- Stata documentation (any version)
- An Introduction to Modern Econometrics using Stata, C.F. Baum, 2006
- Statistics with Stata, by L.C. Hamilton, 2006
- Microeconometrics using Stata, by A.C. Cameron and P.K. Trivedi, 2009
- Mastering Metrics, by J. Angrist and S. Pischke, 2015
- An Introduction to Stata Programming, Christopher F. Baum, 2014
- Detailed guide for webscraping and data analysis with BeautifulSoup (with Python 3!):

All readings are available through the *Biblioteca Vilfredo Pareto*, located in the building B (http://economia.biblio.uniroma2.it/).

Additional material available at:
- https://github.com/michaelstepner/healthinequality-code/blob/master/code/readme.md
- http://www.stata.com/help.cgi?contents
- http://www.ats.ucla.edu/stat/stata/
- http://dss.princeton.edu/online_help/stats_packages/stata/
- http://web.missouri.edu/~kolenikovs/stata/Duke/commands.html
- http://www.mostlyharmlesseconometrics.com/blog/
- https://www.dataquest.io/blog/web-scraping-tutorial-python/
- http://python-guide-pt-br.readthedocs.io/en/latest/scenarios/scrape/
- https://scrapy.org/

Course Web Page

All the material for this class (syllabus, do files, announcements) will be posted on the course webpage.

Some of the data used in class are available at:
http://www.bancaditalia.it/statistiche/indcamp/bilfait/dismicro/annuale/stata

MATLAB module

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Office hours:
Thursday 14:00 - 16:00

Econometric methods will be applied using real-world datasets for both univariate and multivariate time series. The course will cover different models (ARMA, VAR, EC models) and related statistical tests. Students should be able to implement the methods and interpret the results.

Final exam

PASS or FAIL. The final exam consists of a take-home assignment to be returned (via email) at least one week before the expected exam registration.
To correctly evaluate all the assignments, some students can be asked to pass also a practical exam.

Suggested Text and Readings

Cho, Martinez (2014). Statistics in MATLAB: A Primer. Chapman and Hall/CRC

Course Web Page

The material for this class (syllabus, scripts, data, announcements) will be posted on the course website http://economia.uniroma2.it/master-science/economics/corso/426/