

ECON 280: Computation

Instructors: Julian Betts
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Winter 2008

Course Description

This course will be dedicated to the basics of three software packages: Stata, SAS, and Matlab. SAS is arguably the best program available for cleaning and merging messy data, although STATA and Matlab also are quite good at this. Whereas SAS and STATA are useful for carrying out standard data-analysis procedures, Matlab provides the power to carry out non-standard procedures without having to rely on other people's computer programs. (SAS and STATA have this capability as well but Matlab has advantages in terms of ease of programming and in particular, speed and power.)

Tentative Schedule

- Overview of the statistical packages and computing environment 0.5 week
- STATA: A Primer, 2.5 weeks
- Introduction to SAS, 3 weeks
- MATLAB Guide, 2.5 weeks
- Final set of in-lab exercises 1-2 weeks

General References: STATA

- Hamilton: Statistics with STATA (updated for version 9)
<http://www.stata.com/bookstore/sws.html>
- STATA Cross-Sectional Time Series Reference Manual, Release 8, 9 or 10.
- STATA User's Guide, Release 8, 9 or 10.
- You will receive numerous examples as handouts.

General References: SAS

- I will hand out extensive notes on SAS. In addition, SAS has extensive online help.
Among the most useful SAS books for economists is:

Learning and Practicing Econometrics, SAS Handbook
William E. Griffiths, R. Carter Hill, George G. Judge, Wiley, 1993, ISBN: 0-471-58553-X
Paperback, 408 pages. (US \$41.95) A copy is available in the lab. This book is very useful because it shows how to program virtually all the econometric estimators in the Judge et al text.

A general primer is:

- Lora D. Delwiche and Susan J. Slaughter: The Little SAS Book: A Primer, Third Edition

General References: MATLAB

- Moler, C.B.(2004) *Numerical Computing with MATLAB*. Free on-line text available at <http://www.mathworks.com/moler/> A hard copy of this text is also available from Amazon. Moler is the Chairman and Chief Scientist of the MathWorks, which produces Matlab. He is the original author of Matlab and knows what he is talking about.
- Duane Hanselman and Bruce Littlefield (2004), *Mastering MATLAB 7*. This book covers all essential aspects of MATLAB. More book information is available at <http://www.eece.maine.edu/mm/mm7.html>
- Higham D. J. and Higham N.J. (2005). Matlab Guide, SIAM

Economics 200 has a fairly complete set of manuals for both Stata and SAS, and a few less comprehensive volumes on Matlab. These books are for use in Econ 200 only.

Grading Policy:

Grades will be based on participation in small in-class assignments and a larger series of 4 group assignments. There will be four such assignments during the quarter. Each student must do all of these assignments with a passing grade to pass the course.

Office Hours: Julian Betts: Wednesday 1-2:30 PM

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