ECON 280: Computation

Instructors: Yixiao Sun
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Winter 2014

Homepage: ted.ucsd.edu
Location: APM B349
Time: Fridays 9:00-11:30am
Office hours: Fridays 2:00pm-3:00pm & by appointment

Course Description

The course contains five parts.

1. Computing environment and document processing software LaTeX and Scientific Workplace
2. Matlab
3. Numerical Methods to solve a nonlinear equation and to optimize a nonlinear objection function.
4. STATA
5. Topics suggested by students

Course Schedule

- Overview of statistical packages and computing environment, 0.5 week
- LaTeX and Scientific Workplace, 1 week
- MATLAB: Basic and advanced topics (Mex, Parallel Computing, Triton Cluster..), 3 weeks
- Numerical Methods and Monte Carlo, 2 weeks
    - Root finding algorithms
    - Optimization algorithms
- STATA: (Basic and Advanced STATA programming, Mata in STATA) , 2.5 weeks

General References: MATLAB

- Higham D. J. and Higham N.J. (2005). Matlab Guide, SIAM

- 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 (2005), Mastering MATLAB 2012 Edition. This book covers all essential aspects of MATLAB. More book information is available at http://www.masteringmatlab.com/home

- Matlab Visual Conference: http://www.youtube.com/MATLAB

General References: STATA

- Hamilton: Statistics with STATA 10. http://www.stata.com/bookstore/sws.html

- Christopher F. Baum: An Introduction to Modern Econometrics Using Stata

- Colin Cameron and Pravin K. Trivedi: Applied Microeconometrics Using Stata

- Handout.

General References: Numerical Methods

- Press, et al, Numerical Recipes Chapters 9-10, available on line at http://www.nrbook.com/a/

- Judd, K. (1998) Numerical Methods in Economics, MIT Press.

- M. Miranda and P.L. Fackler (2002) Applied Computational Economics, MIT Press.

General References: Monte Carlo Methods

- Train, K., (2009), Discrete Choice Methods with Simulation, Cambridge, MA: Cambridge University Press, Ch. 8, 9, 10

Grading Policy

Grades will be based on

(i) class attendance (20%)

(ii) four homework assignments (20%).

(iii) quizzes that will be announced in advance (20%)

(iv) A final exam in the lab (40%)

A passing grade for the course requires 70% or more. This is an automated grading system.