Econ 90053  Mathematics for Economists

Semester 1, 2014

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This subject is a serious introduction to some of the mathematics that is used by contemporary research economists. Particularly, this subject will review mathematical tools used in 1st and 2nd year PhD subjects.

The level and material covered will be similar to those used in math bootcamps for 1st year PhD students at the top universities in US.

The course will cover both theory (including proofs and other forms of formal reasoning) and applications of mathematical techniques to economics.

Topics to be covered:

1. Review of formal logic (including proofs), numbers, set theory.
5. Introduction to differential and difference equations.
6. Dynamic programming.
7. Optimal control.
8. Short review of probability theory.

Please note that topics may be adjusted based on students’ interest and level of preparation.

Assessment: 20% exam, 80% assignments (both in-class and take-home).

Prerequisites: working knowledge of calculus is assumed; ECON40001 Advanced Microeconomics or ECON90002 Microeconomics.

Textbook: Angel de la Fuente, Mathematical Methods and Models for Economists, Cambridge University Press, 2000; other books and materials will be advised.

I hope you will find this subject challenging, useful and enjoyable.
Have a fantastic semester,
Svetlana
Last thoughts…

For people, postmortem examinations have shown that education increases the number of branches among neurons \([\text{in the brain}]\). An increased number of branches drives the neurons farther apart, leading to an increase in the volume and thickness of the brain. The idea that the brain is like a muscle that grows with exercise is not just a metaphor.

Norman Doidge, M.D. (from *The brain that changes itself*)

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**Study Econ 90053 Mathematics for Economists to give your brain thickness, volume and that unmistakable shine that comes from using good Maths product!**