

MATH CAMP
Summer 2013
August 19th - August 28th, Room: Smith-Buonanno 207

Instructor: María José Boccardi
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Lectures: Monday-Thursday 10 am - 12 pm and 1-3pm

Homework Review (Optional): Monday-Thursday 9.30-10am

Course Description:

Math Camp The purpose of the course is to learn/review some basic math concepts that would be used and assumed to be known during the first year coursework at the Economics PhD at Brown. Most of the concepts/topics will be covered considering the prerequisites for ECON 2010 instructed by Prof. Mark Dean. The focus would be posed in the practical applications of the topics as well as the intuition rather than in the abstract math. Many practical applications and exercises will be solved in class and some additional will be left as optional exercises. Homework assignments will be available, as well as solutions, but they are for your own benefit only, there are not grades and no required assignments for this course.

References:

- Simon, C.P. and L.E. Blume (1994) *Mathematics for Economists*, W.W Norton & Company [SB]
Most of the material covered in the Math Camp follows this book as well as it is one of the references for ECON 2010
- Mas-Colell, A., M.D. Whinston and J.P. Green (1995) *Microeconomic Theory*, Oxford University Press [MWG]
The mathematical appendix is useful for the Math Camp, and it will be the text book used for ECON 2050 and part of ECON 2060
- Sundaram, R. K. (1996) *A first course in Optimization Theory*, Cambridge University Press [SR]

Course Outline:

Monday August 19th: Introduction, Single Variable Calculus and Multi Variable Calculus
Ref: SB: 2-5, 13-14 and A4 and MWG: MA

Tuesday August 20th: Proof and Real Analysis
Ref: SB: A1 and 12, SR: 1.1, 1.2 and 1.4 and A, and MWG: MF

Wednesday August 21st: Real Analysis and Linear Algebra
Ref: SB: 6-11, SR: 1.3

Thursday August 22nd: Linear Algebra II
Ref: SB: 16 and 23, MWG: MD and SR: 1.5

Monday August 26th: Linear Algebra II and Dynamical Systems
Ref: SB: 16 and 23-25, MWG: MD and SR: 1.5

Tuesday August 27th: Unconstrained and Constrained Optimization
Ref: SB: 17-19, SR: 2-7, and MWG: MJ and MK

Wednesday August 28th: Constrained Optimization and Dynamic Optimization
Ref: SB: 18-19, SR: 2 and 5-7, and MWG:MK