

S1, 2017

Mathematics II

Monday, Thursday 10:25-12:10

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The aim of this course is to provide students with basic tools in Analysis that are needed in advanced level micro and macro economics. The course covers the main part of the Mathematical Appendices in Kreps.

Course information will be posted at

<http://www.oyama.e.u-tokyo.ac.jp/mathii17/>

Topics

1. Real numbers (Debreu 1.5)
2. Some simple real analysis (Kreps A.2; Debreu 1.6, 1.7)
3. Convexity (Kreps A.3; Debreu 1.9)
4. Correspondences (Kreps A.4; Debreu 1.8)
5. Differentiation (Kreps A.7)
6. Negative (semi-)definite matrices
7. Constrained optimization (Kreps A.5)
8. Envelope theorem
9. Fixed-point theory (Kreps A.8)
10. Dynamic programming (Kreps A.6; Stokey-Lucas 4; Puterman 5, 6)

Textbook

- D. M. Kreps, *Microeconomic Foundations I*, Princeton University Press, 2012.

References

- G. Debreu, *Theory of Value*, Yale University Press, 1959.
- N.L. Stokey and R.E. Lucas, *Recursive Methods in Economic Dynamics*, Harvard University Press, 1989.
- M.L. Puterman, *Markov Decision Processes: Discrete Stochastic Dynamic Programming*, Wiley-Interscience, 2005.

Grading

Final exam

Office hours

Fridays 14:00-15:30, or by appointment

10th floor, 1012