Linear Programming with Economic Applications:

A Crash Course

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Abstract

This short course is intended for early graduate students. Its goal is to take participants through the basics of linear programming, and go over some applications to the design of incentives.

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[*]Please send comments to dmr@umn.edu. I plan on making some lecture notes available online via my website, at sites.google.com/view/davidmrahman/teaching.

1 Outline

Part I: Review of Linear Programming

1. Basic duality theorems in finite dimensional spaces

2. The core and the assignment model

3. Existence of correlated equilibrium

Part II: But Who Will Monitor the Monitor?

1. Brief review of the metering problem (Alchian and Demsetz, 1972), the partnership problem (Holmström, 1982), and subjective evaluation (MacLeod, 2003)

2. Rahman (2012)

Part III: Mediated Cooperation

1. Mediated partnerships (Rahman and Obara, 2010)

2. The power of communication (Rahman, 2014)

Part IV: Detecting Profitable Deviations

1. Rochet-Rockafellar theorems (Rockafellar, 1966; Rochet, 1987)

2. Rahman (2024)

References

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