Title: Two-sided matching: theory and application to school choice

Instructors: Vincent IEHLE

Objectives: this is a topics course in microeconomics. It covers recent developments on the allocation of resources on markets not necessarily governed by prices, with an emphasis on the allocation of public-school places to children.

Course Description (6 hours):

1. Introduction to two-sided matching

- Gale and Shapley (1962) College admissions and the stability of marriage, *American Mathematical Monthly.*
- Shapley and Shubik (1972) The assignment game I: the core, *International Journal of Game Theory.*
- Roth (1982) The economics of matching: stability and incentives, *Mathematics of Operations Research.*
- Dubins and Freedman (1981) Machiavelli and the Gale-Shapley algorithm, *American Mathematical Monthly.*
- Roth (1984) The evolution of the labor market for medical interns and residents: A case study in game theory, *Journal of Political Economy.*

2. School choice and general many-to-one problems

- Roth (1986) On the allocation of residents to rural hospitals: A general property of twosided matching markets, *Econometrica*.
- Roth and Sotomayor (1989) The college admissions problem revisited, *Econometrica*.
- Abdulkadirogolu and Sonmez (2003) School choice: a mechanism design approach *American Economic Review.*
- Pathak and Sonmez (2013) School Admissions Reform in Chicago and England: Comparing Mechanisms by their Vulnerability to Manipulation, *American Economic Review.*
- Hafalir, Yenmez and M. Yildrim (2013) Effective Affirmative Action in School Choice, *Theoretical Economics.*
- Hatfield and Milgrom (2005) Matching with contracts, American Economic Review.

3. Applications : centralized procedures in educational systems

- Admission to secondary schools
- Admission to college / universities
- Academic job market
- Teachers' assignments

Texts Used:

- Roth, A. and M. Sotomayor: *Two-sided matching A study in game-theoretic modeling and analysis.* Cambridge University Press. 1990.
- Roth, A. (2008), Deferred acceptance algorithms : history, theory, practice, and open questions, *International Journal of Game Theory* 36(3), 537-569.
- Sonmez, T. and U. Unver: *Matching, allocation, and exchange of discrete resources*. Chapter 17 in Handbook of Social Economics (volume 1). North-Holland. 2010
- The Handbook of Market Design. Oxford University Press. 2013.