

## **Title: MARKET DESIGN**

**Instructors:** Sidartha GORDON and 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 human organs to patients and the allocation of public-school places to children.

### **Course Description:**

#### **1. House Allocation and Housing Markets: deterministic mechanisms**

- Shapley and Scarf (1974) On cores and indivisibility, *Journal of Mathematical Economics*.
- Roth and Postlewaite (1977) Weak versus strong domination in a market with indivisible goods. *Journal of Mathematical Economics*.
- Hylland and Zeckhauser (1977) The efficient allocation of individuals to positions, *Journal of Political Economy*.
- Roth (1982) Incentive compatibility in a market with indivisible goods, *Economics Letters*.
- Ma (1994) Strategy-Proofness and the Strict Core in a Market with Indivisibilities. *International Journal of Game Theory*.
- Papai (2000) Strategyproof Assignment by Hierarchical Exchange, *Econometrica*.
- Abdulkadiroglu and Sönmez (1999) House allocation with existing tenants, *Journal of Economic Theory*.
- Sönmez and Unver (2005) House Allocation with Existing Tenants : An Equivalence, *Games and Economic Behavior*.

#### **2. Stochastic mechanisms**

- Abdulkadiroglu and Sönmez (1998) Random serial dictatorship and the core from random endowments in house allocation problems, *Econometrica*.
- Bogomolnaia and Mouin (2001) A new solution to the random assignment problem, *Journal of Economic Theory*.

#### **3. Kidney Exchange**

- Roth, Sönmez and Unver (2004) Kidney Exchange. *Quarterly Journal of Economics*.
- Roth, Sönmez and Unver (2005) Pairwise Kidney Exchange. *Journal of Economic Theory*.
- Roth, Sönmez and Unver (2007) Efficient Kidney Exchange: Coincidence of Wants in Markets with Compatibility-Based Preferences, *American Economic Review*.
- Unver (2010) Dynamic Kidney Exchange, *Review of Economic Studies*.

#### 4. 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*.

#### 5. School choice and general many-to-one problems

- Roth (1986) On the allocation of residents to rural hospitals: A general property of two-sided matching markets, *Econometrica*.
- Roth and Sotomayor (1989) The college admissions problem revisited, *Econometrica*.
- Abdulkadiroglu 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. Yildirim (2013) Effective Affirmative Action in School Choice, *Theoretical Economics*.
- Kelso and Crawford (1982) Job matching, coalition formation and gross substitutes, *Econometrica*.
- Hatfield and Milgrom (2005) Matching with contracts, *American Economic Review*.

#### 6. Overview and discussion on French 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.