

# MARKET DESIGN – 23940

## AUTUMN 2016

### Basic Information

- Lectures: Wednesday, 9:00 - 12:00, CB08D.05.02
- Instructors: Nick Bedard and Mengxi Zhang
- Email: [Nicholas.Bedard@uts.edu.au](mailto:Nicholas.Bedard@uts.edu.au), [Mengxi.Zhang@uts.edu.au](mailto:Mengxi.Zhang@uts.edu.au)
- Office Hours: Friday, 14:00 – 15:00, CB08.09.73 (Nick); Tuesday, 10:00-11:00, CB08.10.095 (Mengxi)
- No required textbooks

### Course Description

The field of market design studies how to design rules for the allocation of scarce resources. This course is an introduction to market design. It will survey the central applications of market design. Its focus will be to give students the tools to think critically about institutions and market rules and identify why some fail and some succeed. Students will learn to recognize market design problems in the real world and suggest reasonable solutions.

### Assessment

You will be evaluated by a combination of (i) two problem sets (10%, due 27/04 , 16/05); (ii) a midterm (25%); (iii) a presentation (10%, topic due 06/04); (iv) one reading reports (5%, due 08/06); and a final exam (50%). Assignments will be due in class at the start of the lecture on the day they are due. Suggested solutions to the questions in the problem sets will be posted on UTS Online or taken up in class at the due date so late problem sets will not be accepted. Students are encouraged to work together on the assignments but must hand in their own solutions.

Students will present a paper on a topic covered in class (see below). The topic and paper to present can be selected by students (subject to approval by the instructors). Each student will prepare a reading report (three or four pages) on one of their colleague's presentation papers.

The midterm exam will held in class on May 4, 2016. The final exam will be scheduled some time during the final exam period and will be cumulative.

### Extra Lectures

To make up for the shorter term, we will hold three extra lectures at 10:00 – 13:00 on Mondays May 9, May 16 and May 30th.

## Tentative Outline

### 1. Introduction to Market Design and Matching Models (23/03, 30/03)

- *Alvin E. Roth. The economist as engineer: Game theory, experimentation, and computation as tools for design economics. Econometrica, 70:1341-1378, 2002.*
- *Bolton, Gary E. Not up to Standard: Stress Testing Markets for Misbehaviour. Handbook for Market Design. Oxford University Press. 2013.*
- *Klemperer, Paul. Using and Abusing Auction Theory. Handbook for Market Design. Oxford University Press. 2013.*
- *David Gale and Lloyd S. Shapley. College admissions and the stability of marriage. American Mathematical Monthly, 69:9-15, 1962.*
- *Alvin E. Roth. Deferred acceptance algorithms: History, theory, practice, and open questions. International Journal of Game Theory, 36:537-569, 2008.*

### 2. Key Word Auctions and Online Advertising (06/04)

- *Varian, Hal. Position Auctions. International Journal of Industrial Organization, 25: 1163-1178, 2007.*
- *Benjamin Edelman, Michael Ostrovsky, and Michael Schwarz. Internet advertising and the generalized second-price auction: Selling billions of dollars worth of keywords. American Economic Review, 97:242-0259, 2007.*
- *Athey, Susan and Ellison, Glenn. Position auctions with consumer search. Quarterly Journal of Economics, 126:1213-1270, 2011.*

### 3. Collusion (13/04)

- *McAfee, R. Preston and McMillan, John. Bidding Rings. The American Economic Review, 82:579-599, 1992*
- *Graham, Daniel A and Marshall, Robert C. Collusive Bidder Behavior at Single-Object Second Price and English Auctions. Journal of Political Economy. December, 95, 1217-1239, 1987.*
- *Cramton, Peter and Schwartz, Jesse A. Collusive Bidding in the FCC Spectrum Auctions. Contributions to Economic Analysis and Policy, 1 (1), 2002.*

### 4. Spectrum Auctions (20/04)

- *Bichler, Martin, Goeree, K. Jacob, et al. "Spectrum auction design: simple auctions for complex sales." Telecommunications Policy 38(7): 613-622.2014.*

- Goeree, K. Jacob and Lien, Yuanchuan. *An equilibrium analysis of the simultaneous ascending auction. Journal of Economic Theory* 153:506-533. 2014.
- Goeree, K. Jacob and Lien, Yuanchuan. *On the Impossibility of Core-Selecting Auctions, Theoretical Economics*,11(1): 41-25. 2016.

5. Incentive in Organizations (27/04, 09/05)

- Mas-Colell, M. Whinston, and J. Green, *Microeconomic Theory. Chapter 14: The Principal-Agent Problem. 1995.*
- Gibbons, Robert. *Incentives in Organizations. The Journal of Economic Perspectives* 12(4): 115-132. 1998.
- Malcomson, James. *Incentive contracts in labor markets. Handbook of Labor Economics* 3: 2291-2372. 1998.
- Lazear, P. Edward, and Sherwin Rosen. *Rank-Order Tournaments as Optimum Labor Contracts. The Journal of Political Economy* 89(5): 841-864. 1981.
- Kahn, Charles, and Gur Huberman. *Two-sided uncertainty and up-or-out contracts. Journal of Labor Economics: 423-444. 1988.*

6. Intrinsic versus Extrinsic Motivations: The Informed Principal Problem (11/05)

- Benabou, Roland, and Jean Tirole. *Intrinsic and extrinsic motivation. The Review of Economic Studies*, 70(3): 489-520. 2003.
- Suvorov, Anton, and Jeroen van de Ven. *Discretionary rewards as a feedback mechanism. Games and Economic Behavior* 67(2): 665-681. 2009.

7. Electricity Markets and Open Access (16/05)

- Cramton, Peter. *Electricity Market Design: The Good, the Bad and the Ugly. Proceedings of the Hawaii International Conference on System Sciences. January 2013.*
- Cramton, Peter and Doyle, Linda. *An Open Access Wireless Market. Working paper, University of Maryland. January 2016.*

8. Financial Markets (18/05)

- Budish, Eric, Cramton Peter and Shim, John. *The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response. Quarterly Journal of Economics*. 130:4, 1547-1621, November 2015

9. Legal Settlements and Litigation (25/05)

- Samuelson, William. *A Game-Theoretic Approach to Legal Settlements. Game Theory and Business Applications. Springer US. 207-231. 2014*

## 10. Intellectual Property and Patent Law (01/06)

- *Gilbert, Richard, and Carl Shapiro. Optimal patent length and breadth. The RAND Journal of Economics: 106-112. 1990.*
- *Matutes, Carmen, Pierre Regibeau, and Katharine Rockett. Optimal patent design and the diffusion of innovations. The RAND Journal of Economics: 60-83. 1996*
- *Heald, J. Paul J. Optimal Remedies for Patent Infringement: A Transactional Model. U of Chicago Law and Economics Working Paper. 2008.*

## 11. Mechanisms with Endogenous Investment Options (08/06)

- *McAfee, R. P and J. McMillan. Auctions with entry. Economics Letters, 23: 343-347. 1987.*
- *Bag, P. K. Optimal auction design and R& D. European Economic Review, 41:1655-1674.1997.*