

# MECHANISM DESIGN 2: SYLLABUS

Instructor: Xiang Sun

Wuhan University, Economics and Management School  
Academic Year 2014–2015, Semester 1

**Prerequisite:** Calculus, Probability, Advanced Microeconomics, Basic Game Theory

**Course description:** This module discusses the auction theory and mechanism design. The module focuses on presenting basic concepts, core ideas, main results, and recent developments.

**Modular credit:** 2 modular credits

**Time:** Week 1–6, Wednesday, 18:30–19:15, 19:20–20:05, 20:10–20:55

**Venue:** 亮胜楼 C366

**Module website:** <http://www.xiangsun.org/teaching>. If you can not access, please use VPN.

**Instructor:** 孙祥

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- Homepage: <http://www.xiangsun.org>. If you can not access, please use VPN.
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- Telephone: +86 027 6875 5072
- Mailbox: 11-13

**Office hours:** By appointment

**Main references:**

- [Kr] Vijay Krishna, *Auction Theory* (2nd edition), Academic Press, 2010.
- [Sun] Xiang Sun, *Lecture Notes on Game Theory: Theory and Examples*, 2014.  
Electronic version is available at [Sun's homepage](#).

**Language:** Lectures are in English and Chinese. Lecture notes are in English.

**Supplements:**

- [Mi] Paul Milgrom, *Putting Auction Theory to Work*, Cambridge University Press, 2004.
- [Bo] Tilman Börgers, *An Introduction to the Theory of Mechanism Design*, 2014.  
Electronic version is available at [Börgers' homepage](#).
- [JLS] Matthew O. Jackson, Kevin Leyton-Brown and Yoav Shoham, video lectures *Game Theory II: Advanced Applications*.  
<https://class.coursera.org/gametheory2-002/class>.

**Reading list:**

1. Jacques Crémer and Richard P. McLean, Optimal selling strategies under uncertainty for a discriminating monopolist when demands are interdependent, *Econometrica* 53:2 (1985), 345–361.
2. Jacques Crémer and Richard P. McLean, Full extraction of the surplus in Bayesian and dominant strategy auctions, *Econometrica* 56:6 (1988), 1247–1257.
3. John Duggan, Virtual Bayesian implementation, *Econometrica* 65:5 (1997), 1175–1199.
4. Alex Gershkov, Jacob K. Goeree, Alexey Kushnir, Benny Moldovanu and Xianwen Shi, On the equivalence of Bayesian and dominant strategy implementation, *Econometrica* 81:1 (2013), 197–220.
5. Alex Gershkov, Benny Moldovanu and Xianwen Shi, Optimal voting rules, working paper, University of Bonn, 2014.  
Or  
Benny Moldovanu and Xianwen Shi, Specialization and partisanship in committee search, *Theoretical Economics* 8:3 (2013), 751–774.
6. Benny Moldovanu, Aner Sela, Xianwen Shi, Contests for status, *Journal of Political Economy* 115 (2007), 338–363.

**Grouping:**

- Group 1: 叶晨、娄田田、谷穗成
- Group 2: 刘建伟、屠鹏、付延
- Group 3: 杨雨琦、谌攀、刘红艺
- Group 4: 李晓妍、李浩然、张学立
- Group 5: 朱梦丽、陈畅、李静晶
- Group 6: 杨晓侯、刘风飞、刘连涛

**Grading:** Performance (20%), group presentation (60%), and individual report (20%).

**Course outline:**

- Part 1: Auction theory
- Part 2: Mechanism design

**Tentative time table:**

#	Date	Topics	Sections	Remarks
1	Sep. 10	Auction, revenue equivalence principle	[Sun] 4	
2	Sep. 17	Envelop theorem, VCG	[Sun] 16	
3	Sep. 24	Pivot, AGV, optimal auction	[Sun] 16	
4	Sep. 26ii	Group 6		
5	Oct. 24iii	Group 2		
6	Oct. 28iii	Group 3		
7	Nov. 3iii	Group 4		
8	Nov. 4iii	Group 5		
9	Nov. 5iii	Group 1		
10	Nov. 30			Due of reports

Some useful web sites:

- [Website of Paul Milgrom](#)