

Auction Design in Static versus Dynamic Environments  
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## Course Description

This short course focuses on topics in the optimal design of auctions. We shall start by a survey of the foundational techniques in auction and mechanism design, which have come to constitute the meat and potatoes of applied theory and culminated in Myerson's (1981) optimal auction based on the assumption that secondary markets can be banned costlessly. Then we consider the complexity when this assumption is removed, and discuss frontier research in such cases.

The prerequisite is familiarity in real analysis, measure theory and the first-year PhD sequence of microeconomic theory (comparable to the level of Mas-Colell, Whinston and Green, 1995).

## Reading List (extended)

### 1. Standard Techniques in Auction Theory and Mechanism Design

#### A. The envelope theorem routine

Migrom & Segal, "Envelope theorems for arbitrary choice sets," *Econometrica*, v70, 583-601, 2002.

Myerson & Satterthwaite, "Efficient mechanisms for bilateral trading," *JET*, v29, 265-281, 1983.

#### B. The optimal auction technique

Myerson, "Optimal auction design," *Math. of Operations Research*, v6, n1, 58-73, Feb. 1981.

Bulow & Roberts, "The simple economics of optimal auctions," *JPE*, v97, n5, 1060-1090, 1989.

Monteiro & Svaiter, "Optimal auctions with a general distribution: Virtual valuation without densities," *J. Math Econ*, v46, 21-31, 2010.

### 2. Auctions with Resale

Zheng, "Optimal auction with resale," *Econometrica*, v70, n6, 2197-2224, Nov. 2002.

Haile, "Auctions with private uncertainty and resale opportunities," *JET*, v108, 72-110, 2003.

Calzolari and Pavan, "Monopoly with resale," *RAND J. of Econ.*, v37, n2, 362-375, 2006.

Garratt and Tröger, "Speculation in standard auctions with resale,"

*Econometrica*, v74, n3, 753-769, 2006.

Hafalir and Krishna, "Asymmetric auctions with resale," *AER*, v98, n1, March 2008.

Mylovanov and Tröger, "Optimal auction with resale: A characterization of the conditions," *Econ. Theory*, v40, n3, 509-528, 2009.

Garratt, Tröger and Zheng, "Collusion via resale," *Econometrica*, v77, n4, 1095-1136, 2009.

Virág, "First-price auctions with resale: The case of many bidders," *Econ Theory*, v52, n1, 129-163, 2013.

Lebrun, "Revenue ranking of first-price auctions with resale," *JET*, v145, n5, 2037-2043, 2010.

Lebrun, "Optimality and the English and second-price auctions with resale," *Games & Econ Behavior*, v75, n2, 731-751, 2012.

- J. Zhang & R. Wang, "Optimal mechanism design with resale via bargaining," JET, v148, n5, 2096-2123, 2013.
- Zheng, "Existence of monotone equilibria in first-price auctions with resale," Mimeo, June 2014, [http://economics.uwo.ca/people/zheng\\_docs/existenceof.pdf](http://economics.uwo.ca/people/zheng_docs/existenceof.pdf)
- Virág, "Auctions with resale: Reserve prices and revenues," Games & Econ. Behavior, v99, 239-249, 2016.
- Carroll & Segal, "Robustly optimal auctions with unknown resale opportunities," Mimeo, 2016, <http://web.stanford.edu/~gdc/resale29.pdf>
- Hafalir & Kurnaz, "Discriminatory auctions with resale," Mimeo, 2017, <https://www.andrew.cmu.edu/user/isaemin/DAR.pdf>