Economics 8873-100
Auctions: Theory and Experiments
J. H. Kagel and Dan Levin, Instructors
(Meeting: Tuesdays, 11:10AM – 1:55PM)
Office Hours: before class and by appointment

Auctions are of growing importance in both economic theory and practice. The course is designed to provide a comprehensive review of modern auction theory and empirics (with the latter emphasizing experimental data). Topics covered will include private value and common value auctions, different auction mechanisms (e.g., English vs. sealed-bid auctions), single-unit and multi-unit demand auctions. We will be covering more than just auctions – other IO topics of interest.

Students will be expected to keep up with the readings on a weekly basis. For each week's readings we will expect you to comment on one of the articles as to: What are the main points/contribution of the article as *you* see it. What extensions/ additional issues would move research forward? That is, what pertinent questions are left unanswered? What questions do you have/did not understand from the article. These reports do not have to be overly long (1 or 2 pages) but (i) we expect to receive them by Sunday evening/first thing Monday the day before class and (ii) to be substantive in nature as they will form the basis for classroom discussion as well as letting us know where you are having trouble understanding the material. You will send these to Puja Bhattacharya (bhattacharya.42@osu.edu) who will collate the comments and send them out via the class distribution list. Please use this as an opportunity to ask questions and to try out ideas. (Dare to be wrong!)

Finally and most importantly, students will be expected to provide a short (5+ pages) research prospectus and to review at least one journal article relevant to their research prospectus. We have been very liberal in what constitutes a research proposal as it is not limited to auctions but rather students work with me to identify an issue they are interested in and how they plan to attack it. Past research proposals have often turned into parts of students' doctoral dissertations on topics ranging from auctions to individual choice to issues in gift exchange in incomplete labor markets. The motivation is to provide a beginning to a research paper. We suggest that you start working on this project as soon as possible since these proposals will play a large role in determining your grade. In addition, it's not unusual to plan to work on one topic only to realize part way through it's a dead end, but there is something in what you are studying that would make for a better/more interesting research topic. You should plan to confer with me concerning your proposed topic, along with a starting list of references, by the 8th week of class (3/1/15). I will not hesitate to give you an incomplete for shallow/sloppy proposals. Note, I do not expect the proposed research to earn you the Noble in economics, it can be just a proposal on how would you extend an existing study, or more ambitiously (as it has happened in the past), a proposal for a new experimental/theoretical work that may be a seed for a chapter in your thesis. I will allow you to partner in teams of up to 2 students in preparing your research proposals. (Of course, I will expect a 2 student proposal to be better than a 1 student proposal.☺)

Student presentations will last 45 minutes to an hour so we can get 2-3 done over the last two weeks of the course while still taking a short break. You will send copies of your slides and/or your proposal by Sunday evening/Monday AM before your presentation to me and to class members. You will no doubt get feedback on your topic which I expect you to incorporate for a final draft due by finals week. The latter is really important since in developing publishable papers you will get questions/suggestions in

seminar presentations and in referee reports that you will need to take account of. So you might as well get used to it.

Grades will be a function of the quality of your weekly comments on the readings and most importantly the quality of the research prospectus. But to be honest – grades are really pretty much irrelevant. When you go on the job market no one will ask you about your grades – rather they will want to discuss your research. So treat this as an opportunity to get started on some quality research.

In the past this course has always been taught jointly between myself and Prof Levin where the division of labor has been Dan teaching the theory while I would cover the empirics. For the theory I will rely more on intuition that formal proofs, and again I refer you to Professor Ye's class for formal coverage.

General References:

Vijay Krishna, Auction Theory, Academic Press (2002).

Milgrom, Paul, Putting Auction Theory to Work, Cambridge University Press (2004)

Klemperer, Paul, Auctions: Theory and Practice, Princeton University Press (2004). (Most of this is available on line.) Also see Klemperer 1999 "Auction theory: A guide to the literature" Journal of Economic Surveys 13 (3): 227-286.

Surveys:

Kagel, J. H. 1995. "Auctions: A Survey of Experimental Research," in The Handbook of Experimental Economics, J. H. Kagel and A. E. Roth (eds). Princeton: Princeton University Press.

Kagel, J. H. and Levin, D. 2002. "Bidding in Common Value Auctions: A Survey of Experimental Research," in Common-Value Auctions and the Winner's Curse, Princeton Un. Press.

McAfee, R.P., and J. McMillan. 1987. "Auctions and Bidding," Journal of Economic Literature, 25:699-738.

Wilson, R. 1992. "Strategic Analysis of Auctions," in R.J. Aumann and S. Hart, Handbook of Game Theory with Economic Applications, Vol. 1. Amsterdam: Elsevier Science Publishers.

Kagel, J. H. and Levin, D. (2014) "Auctions: An Updated Survey of Experimental Research" in The Handbook of Experimental Economics, vol 2. J. H. Kagel and A. E. Roth (eds). Princeton: Princeton University Press (in press). Updated version will be on my web site.

Other classic (general) references not cited above:

Milgrom, P., and R.J. Weber. 1982. "A Theory of Auctions and Competitive Bidding," Econometrica, 50:1485-527.

Vickrey, William. 1961. "Counterspeculation, Auctions, and Competitive Sealed Tenders," Journal of Finance, 16: 8-37.

Topics/Tentative Schedule:

Note, certain topics should be covered in any graduate auction class namely single unit private and common value auctions. We do this here and then move on from that to cover additional topics. The last classes will be devoted to student presentations. **We note by * primary readings. Other readings are optional/supplemental.**

Topics:

I Wks 1 & 2 **Private Value Auctions**

Core concept: The revenue equivalence theorem (RET) and investigations of same in the lab + optimal auction design.

For the theory you should read one of the following references which take different approaches to the (RET) and Bulow and Roberts (1989) who offer a nice history of the major developments + core concepts in terms of more familiar 3rd degree price discrimination.

McAfee and McMillan (M&M) "Auctions and bidding" pp. 699-711

Klemprer "Guide to the literature" pp. 227-234 and Appendix A and B.

*Bulow, J. and Roberts, J. 1989. "The simple economics of optimal auctions." Journal of Political Economy, 97, 1060-90.

For investigations of the theory you should read at least one of the following:

*Kagel, J. H. 1995. "Auctions: A Survey of Experimental Research," in The Handbook of Experimental Economics, J. H. Kagel and A. E. Roth (eds). Princeton: Princeton University Press. Part I sections A-C.

Kagel and Levin (2016) "Auctions: An Updated Survey of Experimental Research" section I, in Handbook of Experimental Economics, vol 2. (HB, V2) Kagel and Roth, eds.

*Kagel, J. H. and Levin, D. 1993, "Independent private value auctions: Bidder behavior in first-, second-, and third-price auctions with varying numbers of bidders," Economic Journal, 103: 868-79.

Classic theory papers:

Meyerson, R. 1981, "Optimal auction design." Mathematics of Operations Research, 6, 58-73.

Riley, J. and Samuelson, W. F. 1981, "Optimal Auctions," American Economic Review, 71:381-92.

Classic theory papers are above. Somewhat more down to earth:

M&M pp.711- 720
Klemperer pp. 232-236.

II Weeks 3 and 4 **Common Value Auctions**

Theory:

The two classic papers are:

*Milgrom and Weber 1982. "A Theory of Auctions and Competitive Bidding," Econometrica, 50:1485-527.

Wilson, R. 1977. "A Bidding Model of Perfect Competition," Review of Economic Studies, 44: 511-18. (a classic).

Also see M & M Section X pp. 720-723 and Klemperer Section 6, pp 234-35 and 7.2, pp. 236-237.

Experiments

Kagel, J. H. and Levin, D. 2002 "Bidding in Common Value Auctions: A Survey of Experimental Research," in Common-Value Auctions and the Winner's Curse, Princeton Un. Press. (Introduction, parts A, B1-B4, C.1)

*Kagel, J. H. and D. Levin. 1986. "The Winner's Curse and Public Information in Common Value Auctions," American Economic Review, 76:894-920.

Kagel and Levin (2016) "Auctions: An Updated Survey of Experimental Research" section II, in HB, vol 2.

Collusion

M&M Other topics, Section 2, pp. 724-725

Klemperer Section 9, p 240

K&L (2016) section 4.1 and papers cited.

*Cramton and Schwartz, 2002, "Collusive bidding in the FCC spectrum auctions" Contributions to economic analysis and policy (You can get this on the web – google Cramton and Schwartz).

Marshall and Marx 2009 "The vulnerability of auctions and bidder collusion" QJE 124 (2), 883-910.

Salmon 2004 "Preventing collusion between firms in auctions" in *Auctioning Public Assets: Analysis and Alternatives*, Edited by M.C.W. Janssen, Cambridge University Press. http://faculty.smu.edu/tsalmon/CollusionChapter.pdf.

*Offerman, T. and Potters, J., 2006, "Does Auctioning of Entry Licenses Induce Collusion? An Experimental Study," Review of Economic Studies, 73, 769-91.

Internet auctions

There is a lot of research going on in this area. For more references just Google something like Internet auction experiments. Read one of the * articles (at a minimum) and look through the Ockenfel et al survey.

"Online Auctions" Ockenfels, Reiley, and Sandrieh http://www.davidreiley.com/papers/OnlineAuctions.pdf. This is a survey of the research in the area.

*Ariele, Ockenfels and Roth (2005). "An experimental analysis of ending rules in Internet auctions" *Rand Journal of Economics vol 36 (4) 891-908.*

*Sharia and Wooders (2011). "An experimental study of auctions with a buy price under private and common values." Games and Econ Theory, vol 72, pp. 558-573.

Grether, Porter and Shum (2015) "Cyber Shilling in Internet Auctions" AEJ Micro 7 (3) 85-103.

Varien and Harris (2014). "VCG auctions in theory and practice" AER 105 (4): 442-445.

Varien (2009) "Online ad auctions" AER 99(2) 430-34.

Policy Applications

O. Armantier, C. Holt, and C. Plott (2013) "A procurement auction for toxic assets," *AEJ Micro* 5(4), pp 142-62.

*Merlob, Plot and Zhang 2012 "The CMS auction: Experimental studies of a median-bid procurement auction" QJE 127, pp793-827

*Goeree, Plott and Wooders (2004). "Bidders choice auctions" Journal of the European Econ Association, vol 2, pp504-15.

Elia, Offerman and Schotter (2008) "Creating competition out of thin air: An experimental study of RTC

auctions" Games and Economic Behavior, vol 62, pp-383-416

Chang, Chen and Salmon 2014 "An investigation of the average bid mechanism for procurement auctions" Management Science, 61(6), 1237-54.

K&L (2016) sections 4.2 and 4.3 and references cited therein.

Read at least one of these articles in addition to the summary reported in KL (in 2016).