Econ 263: Behavioral Game Theory

(Modelling Behavioral Economics)

FALL 2015

Instructor: Isabel Trevino, itrevino@ucsd.edu, Economics 225.

Time and location: Monday 2 pm - 4:50 pm, Econ 200.

Office hours: By appointment.

Description of the course

This class is intended to give students an introduction to the study of strategic interaction through a behavioral lens. We will review game theory experiments and analyze which theoretical predictions are validated and which are violated in practice. We will characterize the systematic violations of the theory that come from experiments, and study how these behavioral regularities can be incorporated into new equilibrium concepts.

Most of the experimental evidence that we will review will be based on laboratory studies. The reason for this is that the laboratory offers a controlled environment that allows the researcher to observe (and control) the information sets of subjects, and to give structure to some of the subtleties that affect strategic interactions.

The main objective of the class is to encourage students to think about research ideas and to develop one of these ideas into a formal research proposal by the end of the quarter.

This class is part of a sequence on behavioral economics (the other two classes being taught by Jim Andreoni and Charlie Sprenger). Charlie's class (focusing on behavioral aspects of individual decision making) is also being taught this quarter and you are encouraged to take it to have a broader perspective of behavioral economics.

In each class, one of you will present an experimental game theory paper related to the topics we will be studying. You can choose the paper or you can come to me for suggestions. Plan for a 30 minute presentation. The point of these presentations is to encourage a discussion and to be critical about the work of others.

Since the purpose of the class is for you to start thinking about research, the discussions in class are very important to clarify the material that is presented, but also to think about new possible avenues of investigation within each topic.

You are expected to turn in a research proposal at the end of the course. The proposal should be organized like a grant proposal. You are encouraged to talk to your classmates about your research ideas and present your research proposal in groups of 2 (max). On the last class (November 30) you will have 30 min to present your research project to the class. The idea is to get feedback from your classmates and from myself. You will incorporate any useful feedback you get into a written research proposal that

you will hand in to me the day that the final exam is scheduled. If you choose to work with a classmate on your project, you will only have one presentation and one written proposal for both of you. There is no minimum length for the research proposal, just write as many or as few pages needed for you to convey:

- A clear research question (with motivation, methodology)
- A review of the existing literature, stating clearly what your contribution would be
- Your research plan

The research plan: Behavioral economics is composed by both empirical and theoretical papers. You can choose to write a theoretical or an empirical paper, or a combination of both theory and evidence. Don't forget that, whether you choose to work on an empirical or a theoretical project, it is important to view your contribution for both types of literature (i.e. theory that is motivated by empirical irregularities, or empirical work that is testing theory). The research plan that you have to develop on your written proposals will depend on whether you are planning to do theory or data work. Depending on what you choose, I expect the following:

- Theory: You need to set up a formal model designed to answer your research question. You should provide at least a full solution to the model (in terms of equilibrium / optimal allocations) and explain how you will perform the rest of the analysis.
- Empirical work (typically experimental): Develop an experimental design to test the hypotheses that will answer your research question. The design must be very well thought of. Give detailed explanations of the different treatments, incentive schemes, etc. that will conform your experiment. Provide a description of a typical session. Explain what would be the output (in terms of raw data) and how you will analyze the data to answer your research question.

Pre-requisites and fields

You must have taken the entire Ph.D. microeconomics core in the department. This course counts towards the Behavioral/Experimental field, as well as to the Microeconomics field, but cannot be double counted.

Grading

Your final grade will be composed by:

50%: Written research proposal (due on the date of the final) – individual or in pairs

20%: Presentation of research project (Nov. 30) – individual or in pairs

15%: Participation in class discussions – individual

15%: Presentation of paper in class – individual

Topics

1. **Coordination games**
2. **Bubbles and financial speculation**
3. **Mechanism design: Auctions**
4. **Infinitely repeated games and dynamic games**

Some useful books

Camerer, C. 2003. Behavioral Game Theory: Experiments in Strategic Interaction. Princeton University Press. **[C03]**

Kagel, J. and A. Roth (eds.) 1995. The Handbook of Experimental Economics, Vol.1. Princeton University Press. **[KR95]**

Plott, C. and V. Smith (eds.) 2008. Handbook of Experimental Economics Results, Vol. 1. North-Holland. **[PS08]**

Tentative list of papers (will add more as we go)

Introduction

Crawford, V. 2002. "Introduction to Experimental Game Theory," Journal of Economic Theory, 104: 1-15.

Crawford, V. 1997. "Theory and experiment in the analysis of strategic interaction," Econometric Society Monographs 26: 206-242.

Coordination games

(See relevant chapters in **[C03]** and **[KR95]**).

Cooper, R. W., D.V. DeJong, R. Forsythe, and T. W. Ross. 1990. "Selection criteria in coordination games: Some experimental results," The American Economic Review 80: 218-233.

Cooper, R. W., D.V. DeJong, R. Forsythe, and T. W. Ross. 1992. "Communication in coordination games," The Quarterly Journal of Economics 739-771.

Heinemann, F., R. Nagel and P. Ockenfels. 2004. "The Theory of Global Games on Test: Experimental Analysis of Coordination Games with Public and Private Information" Econometrica 72(5).

Heinemann, F., R. Nagel and P. Ockenfels. 2009. "Measuring strategic uncertainty in coordination games" Review of Economic Studies 76(1).

Ho, T. H., Camerer, C. and Weigelt, K. 1998. "Iterated dominance and iterated best response in experimental "p-beauty contests"", American Economic Review, 88, 947-969.

Nagel, R. 1995. "Unraveling in Guessing Games: An Experimental Study." American Economic Review, 85(5).

Szkup, M. and I. Trevino. 2015. "Costly information acquisition in a speculative attack: Theory and experiments" working paper.

Trevino, I. 2015. “Informational channels of financial contagion” working paper.

Van Huyck, J., R. C. Battalio, and R. O. Beil. 1990. “Tacit coordination games, strategic undertainty, and coordination failure," American Economic Review, 80: 234-248.

Van Huyck, J., R. C. Battalio, and R. O. Beil. 1991. “Strategic uncertainty, equilibrium selection, and coordination failure in average opinion games," The Quarterly Journal of Economics, 106: 885-911.

Bubbles and speculation

(See relevant chapters in **[PS08]**).

Anderson, L. R. and Holt, C.A. 1997. "Informational Cascades in the Laboratory", American Economic Review, 87: 847-862.

Celen, B. and S. Kariv. 2004. “Distinguishing Informational Cascades from Herd Behavior in the Laboratory,” American Economic Review, 94(3): 484-497.

Smith, V.L. 1962. "An Experimental Study of Competitive Market Behavior", Journal of Political Economy, 70: 111-137. (Reprinted in Smith (1990)).

Smith, V., Suchanek, G.L. and Williams, A. 1988. "Bubbles, Crashes and Endogenous Expectations in Experimental Spot Asset Markets", Econometrica, 56, 1119-1151. (Reprinted in Hey and Loomes (1995)).

Sunder, S. 1995. "Experimental Asset Markets", in Kagel and Roth (1995).

Plott, C. R. 2000. "Markets as Information Gathering Tools", Southern Economic Journal, 67, 1-15.

Auctions

(See relevant chapter in **[KR95]**).

Filiz-Ozbay, E. and E. Ozbay. 2007. “Auctions with anticipated regret: Theory and experiments,” American Economic Review, 97(4): 1407-1418.

Kagel J. and D. Levin. 1993. “Independent-Private-Values Auctions: Bidder Behavior in First-, Second- and Third-Price Auctions with Varying Numbers of Bidders,” Economic Journal, Vol. 103, 868-879.

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.

Kagel, J. H. and Levin, D. 2010. “Auctions: A Survey of Experimental Research, 1995-2010” prepared for The Handbook of Experimental Economics, vol 2. J. H. Kagel and A. E. Roth (eds). Princeton University Press (forthcoming). URL: http://www.econ.ohio-state.edu/kagel/Auction_survey_1_11_all.pdf

Dynamic and infinitely repeated games

Aoyagi, M., V. Bhaskar, and G. Frechette. 2015. “The Impact of Monitoring in Infinitely Repeated Games: Perfect, Public, and Private” working paper (http://cess.nyu.edu/frechette/print/Aoyagi_2015a.pdf).

Dal Bo, P. and G. Frechette. 2011. “The Evolution of Cooperation in Infinitely Repeated Games: Experimental Evidence,” American Economic Review, 101(1): 411–429.

Dal Bo, P. and G. Frechette. 2014. “On the determinants of cooperation in infinitely repeated games: A survey” working paper (http://cess.nyu.edu/frechette/print/Dal_Bo_2014a.pdf).

Vespa, E. 2015. “An Experimental Investigation of Strategies in Dynamic Games” working paper.

Vespa, E. and A. J. Wilson. 2015. “Dynamic Games and Markov Perfection: Putting the "conditional" in conditional cooperation” (http://www.pitt.edu/~alistair/papers/DynamicCooperation.pdf).