

Econ 109T: Advanced Topics in Game Theory
(Behavioral Game Theory)

WINTER 2018

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

Time and location: Wednesday 10 – 11:50 am, SEQUO 244.

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 models.

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.

Class participation is very important, so your attendance to every class is expected. If you have to miss a class, you have to inform me in advance.

During the first half of the course we will review studies published in leading economic journals. I will post the lecture notes on TritonEd before each class. We will then focus on the design and implementation of an experiment about cooperation in the prisoner's dilemma. We will collectively review the theoretical predictions for different setups (one-shot PD, finitely repeated PD, infinitely repeated PD) and design together an experiment to test these predictions. We will then implement the experiment in the Economics department laboratory with undergraduate subjects.

The main component of your grade will be a written project where you have to analyze the experimental data coming from this experiment. Each one of you will have to prepare a report where you analyze the data that we will generate. The report should be about 10 pages long. You should provide some background to the analysis where you discuss the theoretical predictions for the games that are played. Then you should present some descriptive statistics of the data, followed by a more rigorous regression analysis. You should then discuss how the empirical observations that you analyze contrast the predictions of the theoretical model and with other existing studies. This report is due on the last day of the final exam (March 23). Each one of you should prepare your own project, team work is not allowed.

Pre-requisites

You must have taken Econ 109 with a letter grade of at least B.

Grading

Your final grade will be composed by:

70%: Written experimental analysis

30%: Participation in class discussions

Topics

- 1. Equilibrium selection in coordination games**
- 2. Strategic sophistication**
- 3. Design of experiment: cooperation in the prisoner's dilemma**

Some useful books:

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

Kagel, J. and A. Roth (eds.) The Handbook of Experimental Economics, Vol.1 (1995), Vol. 2 (2016). Princeton University Press.

Tentative list of papers

Alaoui, L. and A. Penta. 2016. "Endogenous depth of reasoning", Review of Economic Studies, Vol 83, Issue 4 (2016): 1297-1333.

Blume, A. and A. Ortmann. 2007. "The effects of costless pre-play communication: Experimental evidence from games with Pareto-ranked equilibria," Journal of Economic Theory, 132(1): 274-290.

Bosch-Domenech, A., J. Montalvo, R. Nagel, and A. Satorra. 2002. "One, Two, (Three), Infinity,...: Newspaper and Lab Beauty-Contest Experiments," American Economic Review 92(5): 1687-1701.

Cachon, G. and C. Camerer. 1996. "Loss-Avoidance and Forward Induction in Experimental Coordination Games," The Quarterly Journal of Economics, 111(1): 165-194.

Cooper, R. W., D.V. DeJong, R. Forsythe, and T. W. Ross. 1990. "Selection criteria in coordination games: Some experimental results," 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.

- Crawford, V. 1991. "An 'Evolutionary' Interpretation of Van Huyck, Battalio, and Beil's Experimental Results on Coordination," *Games and Economic Behavior* 3: 25-59.
- Crawford, V. 1997. "Theory and experiment in the analysis of strategic interaction," *Econometric Society Monographs* 26: 206-242.
- Crawford, V. 2002. "Introduction to Experimental Game Theory," *Journal of Economic Theory*, 104: 1-15.
- Crawford, V. and B. Broseta. 1998. "What Price Coordination? The Efficiency-enhancing Effect of Auctioning the Right to Play," *American Economic Review* 88: 198-225.
- Duffy, J. and N. Feltovich. 2002. "Do actions speak louder than words? An experimental comparison of observation and cheap talk," *Games and Economic Behavior*, 39(1): 1-27.
- 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.
- Kneeland, T. 2015. "Identifying higher order rationality", *Econometrica* 83: 2065-2079.
- Nagel, R. 1995. "Unraveling in Guessing Games: An Experimental Study." *American Economic Review*, 85(5).
- Van Huyck, J., R. C. Battalio, and R. O. Beil. 1990. "Tacit coordination games, strategic uncertainty, 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.
- Van Huyck, J., R. C. Battalio, and R. O. Beil. 1993. "Asset markets as an equilibrium selection mechanism: Coordination failure, game form auctions, and tacit communication," *Games and Economic Behavior*, 5 (3): 485-504.
- Weber, R. 2006. "Managing growth to achieve efficient coordination in large groups." *American Economic Review*, 96(1):114-126.