

12E017

6 ECTS

Experimental Economics

Overview and Objectives

Experimental economics is a grown, yet growing, field in economics and business administration. It provides a method to test theoretical predictions, to explore human behavior in specific economic environments, to help design institutions, to advice on policy and to search for patterns and regularities in economic wheeling and dealing. The range of experimental test beds can be from lab experiments, field experiments, and surveys.

This course will link issues of applied game theory, decision theory, industrial organization, markets, institutional design, and macroeconomics with behavioral and experimental economics, field experiments, and Neuro-economics.

We expect that this course will help students to think that economics can be an experimental science. Students will learn mainly through “learning by doing” which provides a working knowledge of techniques for conducting laboratory, field, experiments, surveys, etc. As a start students will be guided through a selection of experimental and behavioral economics literature with the aim to search for interesting economic, psychological and behavioral research questions, which are addressed with a feasible and original experimental design. These experiments will be run in class, by email, online etc... The motivation and results are summarized as in a professional paper. Students will also participate as subjects in various replications of experiments from the literature, and in the experiments designed by the students in the class. All in all, this course requires a lot of involvement and own ideas from the side of the students, an experiential learning journey.

Course Outline

The course will be divided in two parts:

I. In the first part we will cover a broad range of selected topics in which experimental methods are applied. Students will discuss recommended reading material. In addition in groups of three or 4, students will replicate one classical experiment. In this first part, we will discuss questions like:

- Should we graft fairness into game theory?
- “I think that you think that I think etc.”. Is this how people reason?
- Women don’t ask? and other gender differences.
- To many possible solutions: how theory and experiments can help to make predictions when there are multiple solutions.
- How can we model learning to describe observed behavior?
- Auctions in the lab and in the field
- Experiments extendable to macro?

12E017

Experimental Economics

- What can those fMRI-brain scans do for Economics?
- External validity? A link between the field and the lab.
- Can there be too much choice?
- Etc

We will also introduce students to

- the experimental facilities for programming your own experiments like ztree, classEX, online programs (qualtrics, amazon turk etc.)
- non parametric statistics

II. During the second part of the course, every student (or a group of two) will design and run a novel experiment.

Course Requirements Reading list

- Replication and discussion of a classical experiment (in groups of two to four).
- Design, performance and presentation of an original experiment (alone or in groups of two)
- Paper (about 10-15 page) with original experiment.

Evaluation

The grade will be based on class participation, performance as experimenter, presentations (20%), and final paper (80%).

Materials

General Literature:

Camerer, Colin (2003), Behavioral Game Theory: Experiments in Strategic

Interaction, Princeton University Press.

Camerer, C. , Loewenstein, G. “Behavioral Economics: Past, Present, Future”

Davis, D. and Holt, C. (1993). Experimental Economics. Princeton: Princeton University Press.

Friedman, D. and Sunder, S. (1994). Experimental Methods - A Primer for Economists. Cambridge University Press.

Kagel, J. and Roth, A.E. (eds.) (1995). Handbook of Experimental Economics, Princeton: Princeton University Press.

Siegel, S. and Castellan, N. (1988). Nonparametric Statistics for Behavioral Science. McGraw-Hill, Inc.

Introduction:

Camerer, C. (1997). Progress in Behavioral Game Theory. Journal Economic Perspectives, vol 11, no 4, Fall , 167-188.

12E017

6 ECTS

Experimental Economics

Roth, A. E. (1995), "Introduction to experimental economics", in Kagel, J., A. E. Roth, *The Handbook of Experimental Economics*, Princeton, 1-98.

Selten, R. (1997). Features of Experimentally Observed Bounded Rationality. EEA 97, Toulouse, Presidential Address.

Smith, V. (1982), "Microeconomic Systems as an Experimental Science", *American Economic Review*, December, 923-955.

Smith, V. (1987) "Experimental Methods in Economics", in J. Eatwell et al (eds), *The New Palgrave: A Dictionary of Economics*, New York.

Smith, V. (1992), *Experimental Methods in Economics*, UPF Working Paper, June.

Individual decision making: Choice overload and hyperbolic discounting

Camerer, Colin (1995) "Individual Decision Making" , in Kagel, J. and A. E. Roth, *Handbook of Experimental Economics*, Princeton: Princeton University Press

Gregory S. Berns, David Laibson, and George Loewenstein (2007) "Intertemporal choice – toward an integrative framework," *Trends in Cognitive Sciences*, 11(11), pp. 482-8. Laibson, hyperbolic discounting.

Rubinstein, Ariel "Economics and Psychology"? The Case of Hyperbolic Discounting, *International Economic Review* 44 (2003), 1207-1216.

Kahneman, D. and A. Tversky (1979), "Prospect theory: An analysis of decision making under risk, *Econometrica* 47:263-91

Starmer, C. (2000). Developments in non-expected utility theory: The hunt for a descriptive theory of choice under risk. *Journal of Economic Literature*. 38, 332-382.

Iyengar, S. S., Jiang, W., & Huberman, G. (2004). How much choice is too much? Contributions to 401 (k) retirement plans. In O. S. Mitchell, & S. Utkus (Eds.), *Pension design and structure: New lessons from behavioral finance* (pp. 83-96). Oxford: Oxford University Press.

Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, 79(6), 995-1006.

Schwartz, B. (2004). *The paradox of choice: Why more is less*. New York: Eco/HarperCollins Publishers.

Angeletos, George-Marios, David Laibson, Andrea Repetto, Jeremy Tobacman, and Stephen Weinberg (2001), "The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation" *Journal of Economic Perspectives*, August, pp. 47-68.

McClure, Sam, Keith Ericson, David Laibson, George Loewenstein, and Jonathan Cohen (2007) "Time Discounting for Primary Rewards." *Journal of Neuroscience*, 27: 5796–5804.

Bargaining:

Roth, A.E (1995). Bargaining Experiments. In Kagel, J., A. E. Roth, *The Handbook of Experimental Economics*. Princeton, 253-331.

Camerer, C. and Thaler, R. (1995). Anomalies: Ultimatums, Dictators, and Manners. *Journal of Economic Perspectives* 9 (2): 209-219.

Charness, G. (1997). Attribution and Reciprocity in a Simulated Labor Market: An Experimental Investigation. Working paper.

Fehr E. and E. Tougareva (1995). Do Competitive Markets with High Stakes Remove Reciprocal Fairness? Experimental Evidence from Russia, Working paper.

12E017

6 ECTS

Experimental Economics

Roth, Alvin, Prasnikar, V., Okuno-Fujiwara, M. and Zamir, Shmuel (1991). Bargaining and Market Behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: Some experimental Evidence. *American Economic Review* 81, 1068-1095.

Camerer, C. 2003 Behavioral Game Theory, chapter Bargaining.

Coordination:

Camerer, C, Coordination, Behavioral Game Theory, Princeton University Press, 2003 chapter coordination

Ochs, J. (1995). Coordination Problems. In Kagel, J., A. E. Roth, *The Handbook of Experimental Economics*, Princeton, p. 195-249.

Van Huyck, J., Battalio, R. and Beil, R. (1990). Tacit Coordination Games, Strategic Uncertainty and Coordination Failure. *American Economic Review* 80, 234-48.

Bornstein, G, Gneezy, U., and Nagel, R. (2002). The Effect of Intergroup Competition on Group Coordination. *Games and Economic Behavior*. Volume 41, October 2002, pp.1-25.

Heinemann, F., R. Nagel, and P. Ockenfels, The Theory of Global Games on Test: Experimental Analysis of Coordination Games with Public and Private Information, *Econometrica* 72 (5), 2004, pp. 1583-1599.

Heinemann, F., R. Nagel, and P. Ockenfels, "Measuring Strategic Uncertainty in Coordination Games", *Review of Economic Studies*, 2009 (76), pages 181-221

Social preferences

Fehr, E., Klaus M., and Schmidt A. Theory of Fairness, Competition and Cooperation, *Quarterly Journal of Economics* 114, (1999), 817-868

Rabin, M. (1993). Incorporating Fairness into Game Theory and Economics. *American Economic Review*, 83(5), 1281-1302.

Shaked A., The Rhetoric of Inequity Aversion (March 1, 2005). <http://ssrn.com/abstract=675227>

Fehr, E., Schmidt K. The Rhetoric of Inequity Aversion – A Reply*(March 2, 2005). http://www.vwl.uni-muenchen.de/l_schmidt/pamphlet/Shaked-Reply.pdf

Shaked A., A Brief Response by A. Shaked to Fehr & Schmidt's Reply to Shaked's Pamphlet (March 8, 2005) <http://www.wiwi.uni-bonn.de/shaked/rhetoric/BRF.pdf>

Attanasi, G. , Nagel (2007), "Psychological Games: Theoretical Findings And Experimental Evidence" in "Games, Rationality and Behaviour: Essays on Behavioural Game Theory and Experiments." Eds: Alessandro Innocenti and Patrizia Sbriglia. Publisher: Palgrave Macmillan, Houndmills.

Dufwenberg, M. And G. Kirchsteiger (2004): A Theory of Sequential Reciprocity. *Games and Economic Behavior*, 47, 268-298.

Gender, Discrimination

Gneezy, Uri, Muriel Niederle, Aldo Rustichini, "Performance in Competitive Environments: Gender Differences", *Quarterly Journal of Economics*, CXVIII, August 2003, 1049 – 1074.

Muriel Niederle, and Lise Vesterlund, "Do Women Shy away from Competition? Do Men Compete too Much?" *Quarterly Journal of Economics*, 2007, 122(3):: 1067-1101.

Niederlem Muriel, Carmit Segal, Lise Vesterlund "How Costly is Diversity? Affirmative Action in Light of Gender Differences in Competitiveness" discussion paper

Niederle, Muriel and Alexandra H. Yestrumskas, "Gender Differences in Seeking Challenges: The Role of Institutions", January 2008.

12E017

6 ECTS

Experimental Economics

Falk, Armin, and Thomas Dohmen "Performance Pay and Multi-dimensional Sorting: Productivity, Preferences and Gender" (IZA DP 2001)

Gneezy, Uri, Kenneth L. Leonard, John A. List, "Gender Differences in Competition: Evidence from a Matrilineal and a Patriarchal Society," September 2009, 1637-1664.

Fershtman, C., and Gneezy, U. "Discrimination in a Segmented Society: An Experimental Approach," Quarterly Journal of Economics, February 2001, 351-377.

Marianne Bertrand and Sendhil Mullainathan, "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination," American Economic Review, September 2004, 94(4), 991-1013.

Markus M. Mobius and Tanya S. Rosenblat, "Why Beauty Matters," American Economic Review, 2006, 96(1), pp. 222-235.

Incentives and Reciprocity

Uri Gneezy and Aldo Rustichini, "Pay Enough or Don't Pay At All," Quarterly Journal of Economics, 2000, 115(3): 791-810.

Daniel S. Nagin, James B. Rebitzer, Seth Sanders and Lowell J. Taylor, "Monitoring, Motivation and Management: The Determinants of Opportunistic Behavior in a Field Experiment," American Economic Review, 2002, 92(4): 850-873.

Carmit Segal, "Motivation, Test Scores, and Economic Success", discussion paper.

Ernst Fehr and Armin Falk, "Wage Rigidity in a Competitive Incomplete Contract Market," Journal of Political Economy, 1999, 107(1): 106-134.

Uri Gneezy and John A. List, "Putting Behavioral Economics to Work: Field Evidence on Gift Exchange," Econometrica, 2006, 74(5): 1365-1384.

Martin Brown, Armin Falk and Ernst Fehr, "Relational Contracts and the Nature of Market Interactions" *Econometrica* Vol. 72, No. 3, May 2004, 747-780.

Levels of reasoning

Bosch-Domènech, A., J. García-Montalvo, R. Nagel, A. Satorra (2002), One, Two, (Three), Infinity ...: Newspaper and Lab Beauty-Contest Experiments, American Economic Review December 2002, Vol 92 No.5, pp 1687-1701.

Camerer, C., Teck-Hua Ho, Juin-Kuan Chong A cognitive hierarchy model of games.. <http://www.hss.caltech.edu/~camerer/qjefinal6.pdf>

Vincent P. Crawford and Nagore Iriberry, "Level-k Auctions: Can a Non-Equilibrium Model of Strategic Thinking Explain the Winner's Curse and Overbidding in Private-Value Auctions?," *Econometrica* 75 (November 2007), 1721-1770

Nagel, R. (1995). Unraveling in Guessing Games: An Experimental Study. *American Economic Review* 85,5, 1313-1326.

Nagel, R. (1998). A Survey on Beauty-Contest Experiments: Bounded Rationality and Learning. In *Games and Human Behavior, Essays in Honor of Amnon Rapoport*. Eds. D. Budescu, I. Erev, and R.Zwick. Publisher: Lawrence Erlbaum Associates, Inc., New Jersey.

Ho, T.H., K. Weigelt, and C. Camerer (1996), Iterated Dominance and Learning in Experimental Beauty Contest. *Games*, working Paper.

Thaler, R. (1997). Giving Markets a Human Dimension. *Financial Times*, section Mastering Finance 6, June 16, 1997.

Learning:

Camerer, C and Ho, T. (1998). "Experienced weighted Attraction Learning in Games: Estimates from Weak-Link Games." In *Games and Human Behavior, Essays in Honor of Amnon Rapoport*. Eds. D. Budescu, I.

12E017

6 ECTS

Experimental Economics

Erev, and R.Zwick. Publisher: Lawrence Erlbaum Associates, Inc., New Jersey.

Erev, I. and Roth, A. (1998). "On the need for Low Rationality, Cognitive Game Theory: Reinforcement Learning in Experimental Games with Unique Mixed Strategy Equilibria." *American Economic Review*, 88, 848-881.

Nagel, R. and F. Tang (1998). Experimental Results on the Centipede Game in Normal Form: An Investigation on Learning. *Journal of Mathematical Psychology* 42,(2), June/September 1998, S.256-384.

Stahl, D. (1996). Bounded Rational Rule Learning in Guessing Games. *Games and Economic Behavior*, 16(2), 303-330.

Bereby-Meyer, Y., Roth, A. (2003) Learning in Noisy Games: Partial Reinforcement and the Sustainability of Cooperation, working paper

Auctions:

Kagel, J. H. (1995). Auctions: A Survey of Experimental Research. In Kagel, J., A. E. Roth, *The Handbook of Experimental Economics*, Princeton, p. 501-557.

Kagel, John H. and Levin, D. (1986). The Winner's Curse and Public Information in Common Value Auctions. *AER*, December, p. 894-920.

Harrison, G. (1989). Theory and Misbehavior in First Price Auctions. *AER* September, p.749-762.

Rust, J., J. H. Miller and R. Palmer (1992). Behavior of Trading Automata in a Computerized Double Auction Market. In D. Friedman and J. Rust (eds.) *The Double Auction Market: Institutions, Theories and Evidence*, Addison-Wesley.

McCabe, K. A., S. J. Rassenti and V. L. Smith (1992). Designing a Uniform Price Double Auction. In D. Friedman and J. Rust (eds.) *The Double Auction Market: Institutions, Theories and Evidence*, Addison-Wesley.

Kagel, J. (1995). Cross-game Learning: Experimental Evidence from First-Price and English Common Value Auctions. *Economic Letters*,49.

Kagel, J. 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.

Macro experiments:

Duffy, John (forthcoming) *Macroeconomics: A Survey of Laboratory Research*, in *Handbook of Experimental Economics* (Volume 2), edited by John Kagel and Al Roth

Akerlof, G.A. (2002), "Behavioral Macroeconomics and Macroeconomic Behavior," *American Economic Review* 92, 411-433.

Akerlof, G.A. (2007), "The Missing Motivation in Macroeconomics," *American Economic Review* 97, 5-36.

Duffy, J. and J. Ochs (1999), "Emergence of Money as a Medium of Exchange: An Experimental Study," *American Economic Review* 89, 847-77.

Duffy, J. and J. Ochs (2002), "Intrinsically Worthless Objects as Media of Exchange: Experimental

Fehr, E. and J-F. Tyran (2001), "Does Money Illusion Matter?," *American Economic Review* 91, 1239-62.

Ricciuti, R. (2004), "Bringing Macroeconomics into the Lab" *International Center for Economic Research*, working paper no. 26.

Relation between internet/field experiments and experimental economics

Harrison, Glenn and John A. List. "Field Experiments," *Journal of Economic Literature* (2004), XLII, 1009-1055.

Camerer, C., L. Babcock, G. Loewenstein and R. Thaler (1997). *Labor Supply Of New York City Cab*

12E017

6 ECTS

Experimental Economics

Drivers: One Day At A Time, Quarterly Journal of Economics, 407-441.

David H. Lucking-Reiley, J.A.List.(2000) "Demand Reduction in Multi-Unit Auctions: Evidence from a Sportscard Field Experiment". American Economic Review, American Economic Association, vol. 90(4), pages 961-972 (version of 1999 is included into the course package)

Kagel, John H. and A.E. Roth. "The dynamics of reorganization in matching markets: A laboratory experiment motivated by a natural experiment," Quarterly Journal of Economics, forthcoming.

Roth, A.E. and Axel Ockenfels. "Last Minute Bidding and the Rules for Ending Second-Price Auctions: Theory and Evidence from a Natural Experiment on the Internet American Economic Review.

Dan Ariely, Axel Ockenfels and Alvin E. Roth An Experimental Analysis of Ending Rules in Internet Auctions.The RAND Journal of Economics, forthcoming.

For a extensive list of field experiments see <http://www.fieldexperiments.com/> which is from John List.

Neuro-economics

Adolphs, R. (2003), Investigating the cognitive neuroscience of social behavior, Neuropsychologia 42: 119-126.

Adolphs, R. (2003), Cognitive neuroscience of human social behavior, Nature Reviews Neuroscience4,: 165-178.

Camerer, C. , G. Loewenstein, and D. Prelec, "Neuroeconomics: How neuroscience can inform economics", Journal of Economic Literature Vol. XLIII (March 2005), pp. 9-64

<http://www.hss.caltech.edu/~camerer/JELfinal.pdf>

Nathalie Camille, Giorgio Coricelli, J. Sallet, Pradat-Diehl,P. J-R. Duhamel, A. Sirigu, "The Involvement of

the Orbitofrontal Cortex in the Experience of Regret, SCIENCE, VOL 304 21 MAY 2004

King-Casas B. Tomlin, D. Anen, C. Camerer, C.S. R. Quartz, P. Read Montague Getting to Know You: Reputation and Trust in a Two-Person Economic Exchange, SCIENCE VOL 308 APRIL 2005 83

McCabe, K., D. Houser, L.Ryan, V. Smith, and T. Trouard (2001) A functional imaging study of cooperation in two-person reciprocal exchange, Proceedings of the National Academy of Sciences 98: 11832-11835.

Moll, Jorge et al (2002), The neural correlates of moral sensitivity: a functional magnetic resonance imaging investigation of basis and moral emotions, The Journal of Neurosciences 22: 2730-2736

Montague, P. R. and G. S. Berns (2002), Neural economics and the biological substrates of valuation, Neuron 36: 265-264.

Smith, K. Dickhaut, J., K. MacCabe and J.V. Pardo (2002), Neural substrates for choice under ambiguity, risk, gains and losses, Management Science,48: 711-718.

Zak, P.J., Trust, CAPCO Institute - The Journal of financial transformation , <http://fac.cgu.edu/~zakp/publications/CAPCOTrust.pdf> 461-475, December 2010.

Coricelli, G: and R. Nagel (2009) Neural correlates of depth of strategic reasoning in medial prefrontal cortex", Proceedings of the National Academy of Sciences (PNAS): Economic Sciences, June 9, 2009 vol. 106.