

**Course: Behavioral Economics Professor: Massimo Warglien (email: [warglien@unive.it](mailto:warglien@unive.it))**

*Office Hours:* After class or by appointment

*Purpose of the course* The course introduces to recent developments in experimental economics and in behavioral models of economic behavior. The course has two parts. The first part deals with experimentally observed violations of expected utility and introduces alternative models of individual behavior. The second part reconsiders basic solution concepts in game theory in the light of the experimental evidence on game playing and explores behavioral models of interactive decision making.

*Prerequisites* Students are expected to have basic notions of expected utility theory and some familiarity with the basic concepts of game theory.

*Teaching method* There will be fifteen lectures on experimental methods and results, and basic models of behavioral economics; the course will include laboratory sessions.

Examination policy:

Evaluation will be based on participation to class work and homework, a written exam, a written exam, and a project work consisting in the design of an economic experiment.

## **Course Program**

### **Part I: Individual behavior**

Expected utility: biases and violations

Bias in probabilistic reasoning

Some alternatives to expected utility:

Regret theory Prospect theory

Experimental evidence on non-EU models

Applications: consumer behavior, investor behavior, medical decision making; policy implications of behavioral analysis ...

### **Part II: Behavioral game theory**

Reasoning in games:

Common knowledge; Dominance and iterated dominance.

Backward induction and sub-game perfect equilibria.

A model of bounded rationality with limited reasoning steps: the “Cognitive Hierarchy” model

Learning in games

Motivation and fairness. Inequality aversion. Fairness equilibria. Cooperation in public goods and in the commons

Applications: bargaining; understanding labour contracts; market entry; trust; incentives ...

## **Mandatory readings:**

Matt Rabin (1998) Psychology and Economics, *Journal of Economic Literature* 36(1) 11-46

Starmer, C. “Developments in Non-Expected Utility Theory: The Hunt for a Descriptive Theory of Choice Under Risk,” *Journal of Economic Literature*, 38:332-82

Camerer, C: et al. (2004) “A Cognitive Hierarchy Model of Games”, *Quarterly Journal of Economics* 119(3) 861-898.

Ido Erev and A. Roth, Predicting how people play games: Reinforcement learning in experimental games with unique, mixed strategy equilibria. 1998 *AER*, 88, 848-881.

Fehr, E, and K, Schmidt (1999) “A Theory of Fairness, competition, and cooperation,” *Quarterly Journal of Economics*, 117(3):817-68

**+ 5 papers among the following, to be jointly agreed...**

*General reference books on the course topics are:*

John Kagel and Alvin Roth, Handbook of Experimental Economics. Princeton 1995. Colin Camerer, Behavioral Game Theory: Experiments on Strategic Interaction, Princeton, 2003

*Introductory overview papers are:*

Matt Rabin (1998) Psychology and Economics, Journal of Economic Literature 36(1) 11-46 Alvin Roth (1995) "Introduction to Experimental Economics" chapter 1 of Kagel and Roth, Handbook of Experimental Economics

Papers (only a first list; other readings will be suggested during the classes)

*Violations of Expected Utility; bias and heuristics*

Maurice Allais "Le Comportement de l'Homme Rationnel devant le Risque: Critique des postulats et axiomes de l'École Américaine", 1953, Econometrica. Ellsberg, D. (1961) "Risk, ambiguity, and the Savage Axioms," Quarterly Journal of Economics, 75:643-69. Grether, D. and C. Plott (1979) "Economic Theory of Choice and the Preference Reversal Phenomenon," American Economic Review, 69:623-38 Becker, G.M., DeGroot, M.H., & Marschak, J. "Measuring Utility by a Single Response Sequential Method(1964) Behavioral Science. 9, 226-232.

C.Holt (1986) "Preference reversal and the independence axiom" American Economic Review

508-515 Tversky, A., P. Slovic, and D. Kahneman (1990) "The causes of preference reversal,"

American Economic Review, 80:204-17 Hsee, C. et. al. (1999) "Preference Reversals Between Joint and Separate Evaluations of Options: A Theoretical Analysis," Psychological Bulletin, 125(5): 576-90

Tversky, A. and D. Kahneman (1974) "Judgement under Uncertainty: Heuristics and Biases,"

Science 185, 1124-31. Tversky, A. and D. Kahneman (1981) "The Framing of Decisions and the Psychology of Choice," Science, 211:453-58

Tversky, A. and D. Kahneman, D. (1992) "Advances in Prospect Theory: Cumulative Representation of Uncertainty," Journal of Risk and Uncertainty, 297-323

Barberis, Huang and Santos (2001) "Prospect theory and asset prices". Quarterly Journal of Economics. Benartzi & Thaler, (1995) "Myopic loss aversion and the equity premium puzzle," Quarterly Journal of Economics, 110, 73-92.

Rabin, M. (2000) "Risk Aversion and Expected-Utility Theory: A Calibration Theorem,"

Econometrica, 68(5), 1281-1292 Simonson, I. and A. Tversky (1992) "Choice in Context: Tradeoff Contrast and Extremeness Aversion," Journal of Marketing Research, 29 (3), 281-95

Shafir, E. I. Simonson, and A.Tversky "Reason-based choice," Cognition, 1993, 49, 11-36. Thaler,

R. (1985) "Mental accounting and consumer choice". Marketing Science, Camerer and Dan

Lovallò.(1999) "Overconfidence and excess business entry: An experimental approach", American Economic Review

*Non-EU models*

Starmer, C. "Developments in Non-Expected Utility Theory: The Hunt for a Descriptive Theory of Choice Under Risk," Journal of Economic Literature, 38:332-82 Kahneman, Daniel & Amos

Tversky, "Prospect theory," Econometrica 1979, 47(2), 263-91

Tversky, A. and D. Kahneman, D. (1992) "Advances in Prospect Theory: Cumulative Representation of Uncertainty," Journal of Risk and Uncertainty, 297-323

*Iterated reasoning in games*

Randolph Beard and Richard Beil, "Do People Rely on the Self-interested Maximization of Others? An Experimental Test," Management Science 40 (1994), 252-262 Andrew Schotter, Keith Weigelt,

and Charles Wilson, "A Laboratory Investigation of Multiperson Rationality and Presentation Effects," *Games and Economic Behavior* 6 (1994), 445-468

Nagel, R. (1995) "Unraveling in Guessing Games: An Experimental Study," *AER*, 85(5):1313-26.;

Stahl, D. and P. Wilson (1995) "On player's models of other players: theory and experimental evidence," *Games and Economic Behavior*, 10:218-54;

E.Johnson, C.Camerer, S.Sen, T.Rymon (2002) "Detecting failures of backward induction" *Journal of Economic Theory*:16-47 Colin Camerer, Teck-Hua Ho, and Juin-Kuan Chong, "A Cognitive Hierarchy Theory of One-Shot Games forthcoming *QJE*

*QRE equilibria*

Richard McKelvey and Thomas Palfrey, "Quantal Response Equilibria for Normal-Form Games," *Games and Economic Behavior* 10 (1995), 6-38

*Learning in games*

Drew Fudenberg and David Levine, *The Theory of Learning in Games*, MIT 1998 Yaw Nyarko , Andrew Schotter (2002) "An experimental study of belief learning using elicited beliefs" *Econometrica*

Ido Erev and A. Roth, Predicting how people play games: Reinforcement learning in experimental games with unique, mixed strategy equilibria. 1998 *AER*, 88, 848-881.

R.Selten, K.Abbink,, R.Cox "Learning direction theory and the winner's curse" WP, UNi.Bonn, 2002 Colin Camerer and Teck-Hua Ho, "Experience-weighted Attraction Learning in Normal Form Games," *Econometrica*, 67 (1999), 827-874

*Case-based decision making*

I.Gilboa, D.Schmeidler "Case based decision-making" *QJE* 1995, 605-639

*Fairness and reciprocity*

Alvin Roth, "Bargaining Experiments," chapters 1 and 4 of Kagel and Roth, *Handbook of Experimental Economics* Colin Camerer and Richard Thaler, "Ultimatums, Dictators, and Manners," *Journal of Economic Perspectives* 9 (1995), 209-219 Bolton, G.E. and A. Ockenfels (2000) "ERC: A theory of equity, reciprocity, and competition," *American Economic Review*, 90(1): 166-93 Fehr, E, and K, Schmidt (1999) "A Theory of Fairness, competition, and cooperation," *Quarterly Journal of Economics*, 117(3):817-68

Ernst Fehr and Simon Gächter (2000) "Fairness and retaliation: the economics of reciprocity". *Journal of Economic Perspectives*, 14, 159-81 Matthew Rabin, "Incorporating Fairness into Game Theory and Economics," *American Economic Review* 83 (1993), 1281-1302 George Akerlof (1982) "Labour contracts as partial gift exchange " *Quarterly Journal of Economics*, 97, 543-69 Lazear, Edward (1989) "Pay equality and industrial politics," *Journal of Political Economy*, 97, 561-580.

*Other recommended papers:*

John B. Van Huyck, Raymond C. Battalio, and Richard O. Beil (1990) Tacit Coordination Games, Strategic Uncertainty, and Coordination Failure. *American Economic Review*, 80, 234-48

Roberto Weber and Colin Camerer (2003) Cultural conflict and merger failure . *Management Science* 49 (4) 400-415. Joyce Berg, John Dickhaut and Kevin McCabe (1995) Trust reciprocity and social history, *Games and Economic Behavior* 10, 122-142

Ernst Fehr and Simon Gächter (2000) Do incentive contracts crowd-out voluntary cooperation? WP, University of Zurich