

Economics 142: Behavioral Economics
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Spring 2007
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Goals: The course is divided into two parts. The first half, on behavioral decision theory, will study models in which standard economic rationality assumptions are combined with psychologically plausible assumptions on behavior. We consider whether the new models improve ability to predict and understand choice under uncertainty (and certainty), probabilistic judgment, and intertemporal choice. The second half, on behavioral game theory, will study how players model others' decisions in initial responses to games; and how players learn to predict others' decisions via learning in repeated play of analogous games. (Each half leaves out important topics, some covered in Economics 141, Experimental Economics. For example, the first half leaves out overconfidence, procrastination, and self-control; the second leaves out altruism, spite, trust, and reciprocity.)

Prerequisites: Econ 100B or 170B; and Econ 100C is recommended but not required.

Organization: Economics 142 meets from 12:30-1:50 on Tuesdays and Thursdays, in Warren Lecture Hall, Room 2205. My office hours throughout the quarter will be Wednesdays from 2:00-3:00 or by appointment. The course website is <http://dss.ucsd.edu/~vcrawfor/econ142.html>. There will be a midterm exam in class on Thursday, May 3, and a final exam Thursday, June 14, 11:30 a.m.—2:30 p.m. These dates are firm except for extreme unforeseeable events, in which case exceptions must be requested as soon as you know about them. The midterm will count as one-third of your grade, and the final, which will cover both halves of the class, as two-thirds. I will also post a couple of optional problem sets, which should be good practice for the exams.

Texts: There are no required texts, but I have ordered copies of two recommended texts for the bookstore, which may be useful to people who are seriously interested in behavioral economics:

(“Advances”) Colin Camerer, George Loewenstein, and Matthew Rabin, editors, *Advances in Behavioral Economics*, Princeton, NJ: Princeton University Press, 2003. “Advances”

(“CC”) Colin Camerer, *Behavioral Game Theory: Experiments on Strategic Interaction*, Princeton, 2003

Outline and Readings I have listed many more readings than we can possibly cover in class, in case you wish to read further; the most important readings are marked *. Those few readings for which online access may be difficult are available via email (+); the others should be easy to find at JSTOR (<http://www.jstor.org/jstor/>), Google Scholar, or ScienceDirect. (I may be able to supply some of the readings myself if you cannot download them, but please try before asking me.)

1. Overview of Behavioral Decision Theory

- *Colin Camerer and George Loewenstein, "Behavioral Economics: Past, Present, Future," Chapter 1 in "Advances"; manuscript at <http://www.hss.caltech.edu/~camerer/ribe239.pdf>
- Colin Camerer, pages 617-673 of "Individual Decision Making," Chapter 8 in John Kagel and Alvin Roth, editors, *The Handbook of Experimental Economics*, Princeton, NJ: Princeton University Press, 1995, pp. 587-703
- *Matthew Rabin, "A Perspective on Psychology and Economics," *European Economic Review* 46 (2002), pp. 657-685; <http://dx.doi.org/> enter [10.1016/S0014-2921\(01\)00207-0](http://dx.doi.org/10.1016/S0014-2921(01)00207-0).
- Matthew Rabin, "Psychology and Economics," *Journal of Economic Literature* 36 (1998), pp. 11-46; <http://links.jstor.org/sici?sici=0022-0515%28199803%2936%3A1%3C11%3APAE%3E2.0.CO%3B2-B>
- Daniel Kahneman, "Maps of Bounded Rationality: Psychology for Behavioral Economics," *American Economic Review* 93 (2003), 1449-1475; <http://links.jstor.org/sici?sici=0002-8282%28200312%2993%3A5%3C1449%3AMOBPF%3E2.0.CO%3B2-%23>
- Daniel Kahneman, "A Psychological Perspective on Economics," *American Economic Review Papers and Proceedings* 93 (2003), pp. 162-168; <http://links.jstor.org/sici?sici=0002-8282%28200305%2993%3A2%3C162%3AAPPOE%3E2.0.CO%3B2-5>
- John Conlisk, "Why Bounded Rationality?," *Journal of Economic Literature* 34 (1996), 669-700; at JSTOR

2. Choice under Uncertainty (or Certainty)

a. Classical Expected Utility Model

- *J. Marschak, "Scaling of Utilities and Probability," in Martin Shubik, editor, *Game Theory and Related Approaches to Social Behavior*, New York: John Wiley and Sons, 1964
<http://dss.ucsd.edu/~vcrawfor/ScalingOfUtilities.pdf>
- *Mark Machina, "Expected Utility Hypothesis," in John Eatwell, Murray Milgate, and Peter Newman, editors, *The New Palgrave: A Dictionary of Economics*, London: Macmillan Press and New York: Stockton Press, 1987, vol. 2, pp. 232-239
<http://dss.ucsd.edu/~vcrawfor/ExpectedUtilityHypothesis.pdf>
- Paul Samuelson, "Comments on the Favorable-Bet Theorem," *Economic Inquiry* 12 (1974), pp. 345-55; reprinted in his *Collected Scientific Papers*, vol. IV, pp. 550-560
- Paul Samuelson, "Risk and Uncertainty: A Fallacy of Large Numbers," *Scientia* 98 (1963), pp. 108-113; reprinted in his *Collected Scientific Papers*, vol. I, pp. 153-158

b. Loss Aversion, Reference Dependence, and Prospect Theory

- *Colin Camerer, "Three cheers--psychological, theoretical, empirical--for loss-aversion," *Journal of Marketing Research*, 42 (May 2005), 129-133
<http://www.hss.caltech.edu/~camerer/lossaversionJMR2.doc>
- *Daniel Kahneman, Jack Knetsch, and Richard Thaler, "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias," *Journal of Economic Perspectives* 5 (1991), pp. 193-206 at JSTOR
- Daniel Kahneman, Jack Knetsch, and Richard Thaler, "Experimental Tests of the Endowment Effect and the Coase Theorem," *Journal of Political Economy* 98 (1990), pp. 1325-1348; Chapter 2 in "Advances"; at JSTOR
- Charles Plott and Kathryn Zeiler, "The Willingness to Pay-Willingness to Accept Gap, the 'Endowment Effect,' Subject Misconceptions, and Experimental Procedures for Eliciting Valuations," *American Economic Review* 95 (2005), pp. 530-45
- Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47 (1979), pp. 263-292 at JSTOR
- Colin Camerer, "Prospect Theory in the Wild: Evidence from the Field," in D. Kahneman and A. Tversky, editors, *Choices, Values, and Frames*, Cambridge: Cambridge University Press, 2002; Chapter 5 in "Advances"; <http://www.hss.caltech.edu/SSPapers/wp1037.pdf>.
- David Harless and Colin Camerer, "The Predictive Utility of Generalized Expected Utility Theories," *Econometrica* 62 (1994), pp. 1251-1289; at JSTOR
- *Matthew Rabin and Richard Thaler, "Anomalies: Risk Aversion," *Journal of Economic Perspectives* 15 (2001), pp. 219-232; <http://links.jstor.org/sici?sici=0895-3309%28200124%2915%3A1%3C219%3AARA%3E2.0.CO%3B2-B>
- Justin Sydnor, "Abundant Aversion to Moderate Risk: Evidence from Homeowners Insurance," manuscript <http://wsomfaculty.case.edu/sydnor/deductibles.pdf>
- *Jeremy Siegel and Richard Thaler, "Anomalies: The Equity Premium Puzzle," *Journal of Economic Perspectives* 11 (1997), pp. 193-205 at JSTOR
- Shlomo Benartzi and Richard Thaler, "Myopic Loss Aversion and the Equity Premium Puzzle," *Quarterly Journal of Economics* 110 (1995), pp. 73-92; Chapter 22 in "Advances"; at JSTOR
- Colin Camerer, Linda Babcock, George Loewenstein, and Richard Thaler, "Labor Supply of New York City Cabdrivers: One Day at a Time," *Quarterly Journal of Economics* 112 (1997), pp. 407-441; Chapter 19 in "Advances"; at JSTOR
- Henry Farber, "Is Tomorrow Another Day? The Labor Supply of New York City Cabdrivers," *Journal of Political Economy* 113 (2005), 46-82; at JSTOR
- *+Botond Köszegi and Matthew Rabin, "A Model of Reference-Dependent Preferences," *Quarterly Journal of Economics* 121 (2006), pp. 1133-1165; at JSTOR
- +Botond Köszegi and Matthew Rabin, "Reference-Dependent Risk Attitudes," *American Economic Review*, 97 (2007), in press.

3. Probabilistic Judgment

Colin Camerer, pages 590-616 of “Individual Decision Making,” Chapter 8 in John Kagel and Alvin Roth, editors, *The Handbook of Experimental Economics*, Princeton, NJ: Princeton University Press, 1995, pp. 587-703

*Amos Tversky and Daniel Kahneman, “Judgment under Uncertainty: Heuristics and Biases,” *Science* 185 (1974), pp. 1124 – 1131; <http://links.jstor.org/sici?sici=0036-8075%2819740927%293%3A185%3A4157%3C1124%3AJUUHAB%3E2.0.CO%3B2-M>

Mahmoud El-Gamal and David Grether, “Are People Bayesian? Uncovering Behavioral Strategies,” *Journal of the American Statistical Association*, 90 (1995), pp. 1137-1145; <http://links.jstor.org/sici?sici=0162-1459%28199512%2990%3A432%3C1137%3AAPBUBS%3E2.0.CO%3B2-P>

Matthew Rabin, “Inference by Believers in the Law of Small Numbers,” *Quarterly Journal of Economics* 117 (2002), pp. 775 – 816; soon at JSTOR

Matthew Rabin and Dimitri Vayanos, “The Gambler's and Hot-Hand Fallacies in a Dynamic-Inference Model,” manuscript, 2005; <http://elsa.berkeley.edu/~rabin/HotHand8.pdf>

Linda Babcock and George Loewenstein, “Explaining Bargaining Impasse: The Role of Self-Serving Biases,” *Journal of Economic Perspectives* 11 (1997), pp. 109-126; Chapter 11 in “Advances”; at JSTOR

4. Intertemporal Choice

*George Loewenstein and Richard Thaler, “Anomalies: Intertemporal Choice,” *Journal of Economic Perspectives* 3 (1989), pp. 181-193; at JSTOR

Shane Frederick, George Loewenstein, and Ted O'Donoghue, “Time Discounting and Time Preference: A Critical Review,” *Journal of Economic Literature* 40 (2002), pp. 351-401; Chapter 6 in “Advances”; <http://www.hss.caltech.edu/~camerer/NYU/03-LowensteinODonoghueFrederick+.pdf>; at JSTOR

* David Laibson, “Golden Eggs and Hyperbolic Discounting,” *Quarterly Journal of Economics* 112 (1997), pp. 443-478; Chapter 15 in “Advances”; at JSTOR

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

George-Marios Angeletos, David Laibson, Andrea Repetto, Jeremy Tobacman, and Stephen Weinberg, “The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation,” *Journal of Economic Perspectives* 15 (2002), pp. 47-68; <http://www.hss.caltech.edu/~camerer/NYU/03-Angeletos.pdf>; at JSTOR

Ted O'Donoghue and Matthew Rabin, “Doing it now or later,” *American Economic Review* 89 (1999), 103–124; Chapter 7 in “Advances”; at JSTOR

Ted O'Donoghue and Matthew Rabin, “Choice and Procrastination,” *Quarterly Journal of Economics* 116 (2001), 121-160; at JSTOR

5. Overview of Behavioral Game Theory

*CC, Chapter 1, “Introduction”; Appendix 1.1, “Basic Game Theory”; and Appendix 1.2, “Experimental Design”; http://dss.ucsd.edu/~vcrawfor/Camerer_Ch1intro.pdf

*VC, Sections 1, “Introduction”; 2, “Theoretical Frameworks and Unresolved Questions”; 3, “Experimental Designs”; and 7, “Conclusion”

(“VC”) is Vincent Crawford, “Theory and Experiment in the Analysis of Strategic Interaction,” Chapter 7 in David Kreps and Ken Wallis, Editors, *Advances in Economics and Econometrics: Theory and Applications, Seventh World Congress*, Vol. I, Cambridge 1997; Chapter 12 in “Advances”; manuscript at <http://dss.ucsd.edu/~vcrawfor/ShortTh&Exp.pdf>.

Great Summer Reading: Thomas Schelling, *The Strategy of Conflict*, Oxford 1960 or Harvard 1980

6. Theory and evidence on initial responses to games

6a. Iterated dominance and equilibrium in simultaneous-move games

*CC, Chapter 5, “Dominance-Solvable Games”

*VC, Section 4, “Dominance and Iterated Dominance”

Adam Brandenburger, “Knowledge and Equilibrium in Games,” *Journal of Economic Perspectives* 6 (1992), 83-101; at JSTOR

Rosemarie Nagel, “Unraveling in Guessing Games: An Experimental Study,” *American Economic Review* 85 (1995), 1313-1326; at JSTOR

Miguel Costa-Gomes and Vincent Crawford, “Cognition and Behavior in Two-Person Guessing Games: An Experimental Study,” *American Economic Review* 96 (December 2006), 1737-1768; at <http://dss.ucsd.edu/~vcrawfor/#Guess>

Miguel Costa-Gomes, Vincent Crawford, and Bruno Broseta, “Cognition and Behavior in Normal-Form Games: an Experimental Study,” *Econometrica* 69 (2001), 1193-1235; <http://dss.ucsd.edu/~vcrawfor/CGCrBr01EMT.pdf>; at JSTOR

Camerer, Colin, Ho, Teck-Hua and Chong, Juin Kuan, “A Cognitive Hierarchy Model of Games,” *Quarterly Journal of Economics* 119 (2004), 861-898; <http://www.hss.caltech.edu/~camerer/qjefinal6.pdf>

Vincent Crawford and Nagore Iriberri, “Fatal Attraction: Focality, Naivete, and Sophistication in Experimental Hide-and-Seek Games,” *American Economic Review*, 97 (2007), in press 2005; at <http://dss.ucsd.edu/~vcrawfor/#Hide>

6b. Backward induction, subgame-perfectness, and forward induction in extensive-form games

*VC, Sections 4.2, “Ultimatum and alternating-offers bargaining”; 5.1, “Signaling games”; and 6.3, “Simultaneous coordination revisited”

CC, Section 4.2, “Structured Bargaining”; Chapter 5, “Dominance-Solvable Games”; and Section 7.2, “Asymmetric Players: Battle of the Sexes”

T. Randolph Beard and Richard Beil, "Do People Rely on the Self-interested Maximization of Others? An Experimental Test," *Management Science* 40 (1994), 252-262; at JSTOR

Alvin Roth, Vesna Prasnikar, Masahiro Okuno-Fujiwara, and Shmuel Zamir, "Bargaining and Market Behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An Experimental Study," *American Economic Review* 81 (1991), 1068-1095; at JSTOR

Russell Cooper, Douglas DeJong, Robert Forsythe, and Thomas Ross, "Alternative Institutions for Resolving Coordination Problems: Experimental Evidence on Forward Induction and Preplay Communication," pp. 129-146 in James Friedman (ed.), *Problems of Coordination in Economic Activity*, Boston : Kluwer, 1994

Vincent Crawford, "Lying for Strategic Advantage: Rational and Boundedly Rational Misrepresentation of Intentions," *American Economic Review* 93 (2003), 133-149; at JSTOR; see also lecture slides on "Outguessing and Deception in Novel Strategic Situations" at <http://dss.ucsd.edu/~vcrawfor/SMUPubLecSlides.pdf> or (slightly different) <http://dss.ucsd.edu/~vcrawfor/KelloggMEDSDeceptionSlides.pdf>

6c. Selection among multiple strict equilibria via structure, framing, fairness, or complexity

*VC, Section 5, "Simultaneous Coordination"

CC, Section 4.1, "Unstructured Bargaining"; Chapter 7, "Coordination"

Judith Mehta, Chris Starmer, and Robert Sugden, "The Nature of Salience: An Experimental Investigation of Pure Coordination Games," *American Economic Review* 84 (1994), 658-674; at JSTOR

Vincent Crawford, Uri Gneezy, and Yuval Rottenstreich, "The Power of Focal Points is Limited: Even Minute Payoff Asymmetry May Yield Large Coordination Failures," manuscript, 2007; to be posted at <http://dss.ucsd.edu/~vcrawfor/>

Vincent Crawford "Adaptive Dynamics in Coordination Games," *Econometrica* 63 (January 1995), 103-143: Section 2 (pp. 106-109, especially footnote 8); <http://dss.ucsd.edu/~vcrawfor/Crawford95EMT.pdf>; at JSTOR

Teck Hua Ho and Keith Weigelt, "Task Complexity, Equilibrium Selection, and Learning: An Experimental Study," *Management Science* 42 (1996), 659-679; at JSTOR

Alvin Roth, "Bargaining Phenomena and Bargaining Theory," Chapter 2 (pp. 14-41) in Roth (ed.), *Laboratory Experimentation in Economics: Six Points of View*, Cambridge, 1987

Alvin Roth, "Toward a Focal-Point Theory of Bargaining," Chapter 12 (pp. 259-268) in Roth, (ed.), *Game-Theoretic Models of Bargaining*, Cambridge, 1985

7. Equilibrium selection via learning

*VC, Section 6, “Dynamic Evidence”

John Van Huyck, Joseph Cook, and Raymond Battalio (1997): “Adaptive Behavior and Coordination Failure,” *Journal of Economic Behavior and Organization* 32, 483-503; http://erl.tamu.edu/jvh_gtee/os3.pdf

John Van Huyck, Raymond Battalio, and Frederick Rankin, "On the Origin of Convention: Evidence from Coordination Games," *Economic Journal* 107 (1997), 576-597; at JSTOR

Vincent Crawford, “Learning Dynamics, Lock-in, and Equilibrium Selection in Experimental Coordination Games,” in Ugo Pagano and Antonio Nicita, editors, *The Evolution of Economic Diversity*, London and New York: Routledge, 2001, 133-163; UCSD Discussion Paper 97-19; at <http://dss.ucsd.edu/~vcrawfor/ucsd9719.pdf>

Vincent Crawford "Adaptive Dynamics in Coordination Games," *Econometrica* 63 (January 1995), 103-143; <http://dss.ucsd.edu/~vcrawfor/Crawford95EMT.pdf>; at JSTOR

John Van Huyck, Raymond Battalio, and Richard Beil, "Tacit Coordination Games, Strategic Uncertainty, and Coordination Failure," *American Economic Review* 80 (1990), 234-248; at JSTOR

John Van Huyck, Raymond Battalio, and Richard Beil, "Strategic Uncertainty, Equilibrium Selection, and Coordination Failure in Average Opinion Games," *Quarterly Journal of Economics* 106 (1991), 885-910; at JSTOR

Vincent Crawford and Bruno Broseta, "What Price Coordination? The Efficiency-enhancing Effect of Auctioning the Right to Play," *American Economic Review* 88 (March 1998), 198-225; at JSTOR

John Van Huyck, Raymond Battalio, and Richard Beil, "Asset Markets as an Equilibrium Selection Mechanism: Coordination Failure, Game Form Auctions, and Tacit Communication," *Games and Economic Behavior* 5 (1993), 485-504

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