Behavioural Economics (ECO3250H1F) Syllabus

University of Toronto (Fall 2025)

Instructor:
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Office hours:
Monday 16:00-17:00
Or schedule alternative time by e-mail

Course time and location:
Tuesday: 9:00-11:00, GE100
(no lesson on September 9 and September 23. Make up lesson on December 2nd and an additional date scheduled with participants.)

Grading:
We will discuss papers and you will be required to prepare a research proposal. The research proposal can be in core behavioral economics or can apply the methods discussed to a field in economics. The research proposal is due by December 23, 2025.

Course Description:
Behavioral economists study models of human decision making and the interaction among such decision makers in games and markets. As behavioral economists aspire to construct "realistic" models, many of the models are inspired by Psychological and experimental studies.
We will cover the following topics: individual choices under risk and uncertainty; intertemporal choice; other-regarding preferences; bounded rationality in individual decision-making and games; measuring rationality; Procedural rationality.

Learning Outcomes:
- Understand the flexibility and limitations of the economic approach to modeling behaviour.
- Know how to use existing behavioural models to understand new economic phenomena.
- Know to design experiments to evaluate a proposed behavioural model.
- Know to evaluate research in Economics and disciplines related to behavioural research.

- Be able to pose a novel research question, design plan to investigate it and conjecture how to answer it.

Pre-requisites:

Students enrolled in this course are expected to have first-year PhD core courses or alternative comparable background. In particular, Economics undergraduate background is *not sufficient*. If you are unsure, do not hesitate to consult me.

Religious accommodation

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of backgrounds, cultural traditions, and spiritual beliefs. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (like a test, or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Learning Disability Accommodation Requirement

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) (accessibility.utoronto.ca) at the beginning of the academic year. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your medical situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your condition with any instructor, and your instructors will not reveal that you are registered with AS.

Academic Integrity

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to me or your TA for advice on anything that you find unclear. In particular, copying material from other sources (even when properly citing them) without noting it is a quotation is a serious offence. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at https://writing.utoronto.ca/. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see http://www.artsci.utoronto.ca/osai , https://www.sgs.utoronto.ca/policies-guidelines/academic-integrity-resources/ and https://academicintegrity.utoronto.ca/

Normally, students will be required to submit their course essays to Quercus for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site

Specific Medical Circumstances

If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for medical documentation in support of your specific medical circumstances. The University's Verification of Student Illness or Injury (VOI) form is recommended because it indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. You can submit a different form (like a letter from the doctor), as long as it is an original document, and it contains the same information as the VOI. For more information, please see http://www.illnessverification.utoronto.ca/. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Students who are absent from class for any reason (e.g., COVID, other illness or injury, family situation) and who require consideration for missed academic work should report their absence through the online absence declaration. The declaration is available on ACORN under the Profile and Settings menu. Students should also advise their instructor of their absence.

Accommodation for Personal Reasons

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to me. It is also a very good idea to speak with an advisor in your College Registrars office; they can support you in requesting extensions or accommodations, and importantly, connect you with other resources on campus for help with your situation.

Quercus info

This course uses the University's learning management system, Quercus, to post information about the course. This includes materials required to complete class activities and course assignments as well as share important announcements and updates. The site is dynamic and new information and resources will be posted regularly as we move through the term. The principal source of information about all course-related work will be the course site in Quercus, so please make it a habit to log in to the site on a regular if not daily basis. To access the course website, go to the U of T Quercus log-in page at https://q.utoronto.ca and log in using your UTORid and password. Once you have logged in to the Portal using your UTORid and password, look for the "My Courses" module where you will find a link to the ECO3250 course site. Note that if you are currently enrolled in other courses at the University, your other course links will also appear here. Click on the ECO3250 link to open our course area and view the latest announcements and updates, and access your course resources. SPECIAL NOTE ABOUT GRADES POSTED ONLINE: Please note that any grades posted within the Quercus Grade Centre are posted for your information only, so you can view and track your progress through the course. No grades are considered official, included any posted in Quercus at any point in the term, until I have formally approved them at the end of the course. Please contact me as soon as possible if you think there is an error in any grade posted on Quercus.

Cell phone and laptop use

Online lectures: during these times we rely on technology to learn and interact. This requires high level of self-control in order to get the most of out of this course. Please silence your phones, close all windows that are not related directly to the course and try to isolate yourselves from your surrounding during the lesson. Try to keep your cameras open so we can have a real conversation and dialog during the lesson.

In-person lectures: Technology can support student learning, but it can also become a distraction. Research indicates that multi-tasking (texting, surfing the Internet, using social networks) during class time can have a negative impact on learning (Clapp, Rubens, Sabharwal & Gazzaley, 2011; Ellis, Daniels, Jauregui, 2010; Hembrooke & Gay, 2003). Out of respect for your fellow learners in this class, please refrain from using laptops or mobile phones for entertainment during class and do not display any material on a laptop which may be distracting or offensive to your fellow students. Laptops may be used only for legitimate classroom purposes, such as taking notes, downloading course information from Quercus, or working on an assigned in-class exercise. Checking social media, email, texting, games, and surfing the Web are not legitimate classroom purposes. Such inappropriate laptop and mobile phone use is distracting to those seated around you.

Participation

This course is built on your participation. Please make all efforts to attend all classes and actively participate in the discussion. In our structured and unstructured discussions and dialogues, we will have many opportunities to explore challenging issues and increase our understandings of different perspectives. A positive learning environment relies upon creating an atmosphere where diverse perspectives can be expressed. Each student is encouraged to take an active part in class discussions and activities. Honest and respectful dialogue is expected. Disagreement and challenging of ideas in a supportive and sensitive manner is encouraged. Hostility and disrespectful behaviour is not acceptable. In the time we share together over this term, please honour the uniqueness of your fellow classmates and appreciate the opportunity we have to learn from each other. Please respect each others' opinions and refrain from personal attacks or demeaning comments of any kind. Just as we expect others to listen attentively to our own views, we must reciprocate and listen to others when they speak, most especially when we disagree with them. In this class, our emphasis will be on engaging in the mutual exploration of issues as presented in the course readings as scholars, rather than in defending points of view we have formed outside the classroom.

Papers:

Subset of the papers below will be assigned and discussed in class.
Papers marked with * will be discussed in class for sure.

Choice under Risk:

- *Kahneman and Tversky, "Prospect Theory: an Analysis of Decision under Risk", *Econometrica*, 1979
- *Tversky and Kahneman, "Advances in Prospect Theory: Cumulative Representation of Uncertainty", Journal of Risk and Uncertainty, 1992
- *Yaari (ECMA, 1987)
- Chew (ECMA,1983)
- Dekel (JET, 1986)
- Gul (ECMA, 1991)
- *Machina (JEP,1987)
- *Cerreia-Vioglio, Dillenberger and Ortoleva (ECMA 2015)
- *Koszegi and Rabin, "A Model of Reference-Dependent Preferences", Quarterly Journal of Economics, 121 (4), 2006, 1133-1165
- Freeman, "Preferred Personal Equilibrium and Simple Choices" JEBO (2017)
- Freeman, "Expectation-Based Reference-Dependence and Choice under Risk" EJ 2018
- *Masatlioglu and Raymond, "A Behavioral Analysis of Stochastic Reference Dependence" AER 106, 2760-2782, 2016
- *Lanzani, "Correlation made Simple", QJE 2022
- *Rabin, "Risk Aversion and Expected Utility Theory: A Calibration Theorem", Econometrica, 2000
- Samuelson, "Risk and Uncertainty: A Fallacy of Large Numbers", Scientia, 1963
- Rabin and Thaler, "Anomalies: Risk Aversion", Journal of Economic Perspectives, 2001
- Safra and Segal, "Calibration Results for Non-Expected Utility Theories", Econometrica, 2008
- Freeman, "Calibration without reduction for non-expected utility", *JET*, 2015
- Erev and Haruvy, "Learning and the Economics of Small Decisions", in: *Handbook of Experimental Economics Vol. 2* Edited by Roth and Kagel, 2009
- Ebert and Strack, "Until the bitter end: on prospect theory in dynamic context," *AER*, 2015
- Freeman, Halevy, Kneeland, "Eliciting Risk Preferences Using Choice Lists" (QE 2019).

Riskless Choice:

- *Tversky and Kahneman, "Loss Aversion in Riskless Choice: A Reference-Dependent Model" *The Quarterly Journal of Economics* Vol. 106, No. 4 (Nov., 1991), pp. 1039-1061
- *Kahneman, Knetch and Thaler, "Experimental Tests of the Endowment Effect and the Coase Theorem", JPE, 98 (6), 1990, 1325-1348
- *Plott and Zeiler, "The Willingness to Pay-Willingness to Accept Gap, the `Endowment Effect,' Subject Misconceptions, and Experimental Procedures for Eliciting Valuations", AER, 95 (3), 2005, 530-545

- Plott and Zeiler, “Exchange Asymmetries Incorrectly Interpreted as Evidence of Endowment Effect Theory and Prospect Theory?” AER, 97(4), 2007, 1449-1466.
- *Masatlioglu and Ok, “A Canonical Model of Choice with Initial Endowments”, REStud, 81, 2014, 851-883.
- Ok, Ortoleva and Riella, “Revealed (P)Reference Theory, AER 2015.
- *Cerreia-Vioglio, Dillenberger and Ortoleva, “Caution and Reference Effects”, *Econometrica*, 92 (6), 2024, 2069-2103

Ambiguity:

- *Ellsberg, “Risk Ambiguity and the Savage Axioms”, *Quarterly Journal of Economics*, 1961
- *Schmeidler, “Subjective Probability and Expected Utility without Additivity”, *Econometrica,* 1989
- Schmeidler, “Integral Representation Without Additivity*”,* Proceedings of the American Mathematical Society, 1986
- *Gilboa and Schmeidler, “Maxmin Expected Utility with Non-Unique Prior”, Journal of Mathematical Economics, 1989.
- *Fox and Tversky, “Ambiguity Aversion and Comparative Ignorance”, *Quarterly Journal of Economics, 1995*
- *Halevy and Feltkamp, “A Bayesian Approach to Uncertainty Aversion”, *Review of Economic Studies*, 2005
- *Halevy, “Ellsberg Revisited: An Experimental Study”, *Econometrica*, 2007
- Chew, Miao and Zhong, “Partial Ambiguity”, ECMA 2017
- Klibanoff, Marinacci and Mukerji, “A Smooth Model of Decision Making Under Ambiguity”, *Econometrica*, 2005
- Seo, “Ambiguity and Second Order beliefs”, *Econometrica,* 2009
- Epstein, “A Paradox for the `Smooth Ambiguity’ Model of Preference”, *Econometrica,* 2010
- Klibanoff, Marinacci and Mukerji, “On the Smooth Ambiguity Model: A Reply”, Econometrica, 2012
- Cubitt, de Kuilen and Mukerji, “Discriminating between Models of Ambiguity Attitude: a Qualitative Test” (JEEA, 2020).
- *Epstein and Halevy, “Ambiguous Correlation,” *Review of Economic Studies*, 2019
- *Epstein and Halevy, “Hard-to-Interpret Signals,” *Journal of the European Economic Association*, 2024.
- Critique (Al-Najjar and Weinstein Economic and Philosophy special issue)
- Application:
    - Survey (Mukerji and Tallon)
    - Asset markets (Epstein and Schneider)
    - Optimal Auctions (Bose, Ozdenoren and Pape TE, 2006)

- Dillenberger, Postlewaite and Rozen, “Optimism and Pessimism with Expected Utility”, *Journal of the European Economic Association*, 2017.
- *Baillon, Halevy and Li, “Randomize at your own risk: on the observability of ambiguity aversion” *Econometrica*, 2022

Time Preference and Self Control:

Early Papers:

- Koopmans, “Stationary Ordinal Utility and Impatience”, *Econometrica*, 1960
- Fishburn and Rubinstein, “Time Preference”, *International Economic Review*, 1982
- Strotz, “Myopia and Inconsistency in Dynamic Utility Maximization”, *Review of Economic Studies*, 1955
- Pollak, “Consistent Planning”, *The Review of Economic Studies*, 1968
- Peleg and Yaari, “On the Consistent Course of Action when Tastes are Changing”, *Review of Economic Studies, 1973*
- Phelps and Pollak, “On Second-Best National Saving and Game-Equilibrium Growth”, *Review of Economic Studies*, 1968
- Chew Epstein IER 1989
- Epstein Zin ECMA 1989
- Duffie Epstein ECMA 1992
- Chew Epstein JET 1990

Survey:

- *Frederick, Loewenstein and O’Donoghue, “Time Discounting and Time Preference: A Critical Review”, *Journal of Economic Literature*, 2002

Applications of Quasi-hyperbolic Discounting:

- Laibson, “Golden Eggs and Hyperbolic Discounting”, Quarterly Journal of Economics, 1997
- *O’Donoghue and Rabin, “Doing It Now or Later”, *American Economic Review*, 1999

Rubinstein’s Critique:

- Rubisntein, “ A theorist’s view of experiments”, *European Economic Review*, 2001
- *Rubinstein, “`Economics and Psychology’? The Case of Hyperbolic Discounting”, *International Economic Review*, 2003

Time and Risk:

- *Halevy, “Strotz meets Allais: Diminishing Impatience and the Certainty Effect”, *American Economic Review*, 2008
- Chakraborty, Halevy and Saito, “The Relation Between Behavior under Risk and over Time”, *American Economic Review: Insights*, 2020

- Halevy, “Diminishing Impatience: Disentangling Time Preference from Uncertain Lifetime”, (working paper, 2005)
- Baucells and Heukamp, “Probability and Time Tradeoff”, *Management Science*, 2012
- Epper and Fehr-Duda “Risk in Time: the interwined nature of risk taking and time discounting,” *Journal of the European Economic Association*, 2024
- *Chakraborty, “Present Bias”, *Econometrica*, 2021
- DeJarnette, Dillenberger, Gottlieb and Ortoleva, “Time Lotteries and Stochastic Impatience”, *Econometrica* 2020
- Dillenberger, Gottlieb and Ortoleva, “Stochastic Impatience and the Separation of Time and Risk Preferences” (working paper)
- Gabaix and Laibson, “Myopia and Discounting” (working paper)

Preference over menus:

- Kreps, “A Representation Theorem for preference for Fexibility’”, *Econometrica*, 1979
- Dekel, Lipman and Rustichini, “ Representing Preferences with A Unique Subjective State Space”, *Econometrica*, 2001
- Dekel, Lipman, Rustichini and Sarver: “ Representing Preferences with A Unique Subjective State Space: A Corrigendum”, *Econometrica*, 2007
- Gul and Pesendorfer, “Temptation and Self Control”, *Econometrica,* 2001
- Gul and Pesendorfer, “Self-Control and the Theory of Consumption”, *Econometrica, 2004*
- Dekel and Lipman, “Costly self-Control and Random Self-Indulgence” *Econometrica* 2012

Dual-Self:

- Thaler and Shafrin, “An Economic Theory of Self-Control”, JPE 1981
- *Fudenberg and Levine, “A Dual Self Model of Impulse Control”, *American Economic Review*, 2006
- Fudenberg and Levine, “Risk, Delay and Convex Self-Control Costs”, AEJ: Micro 2011

Other papers:

- Galperti and Strulovici, “A theory of intergenerational altruism” ECMA 2017
- Montiel and Strzalecki, “Axiomatization and Measurement of Quasi-hyperbolic Discounting”, QJE 2014

Experimental Papers:

- Andersen Harrison Lau Rutstrom (ECMA 2008)
- *Andreoni Sprenger “Estimating Time Preference” (AER 2012)
    - *Chakraborty, Calford, Fenig and Halevy (ExpEco, 2017)
- *Andreoni and Sprenger, “Risk Preferences are not Time Preferences” (AER 2012)
    - Cheung (AER 2015)
    - Epper and Fehr-Duda (AER 2015)

    - *Miao and Zhong (AER 2015)
- *Halevy, Time Consistency: Stationarity and Time Invariance (ECMA 2015)
- *Augenblick, Niederle and Sprenger, (QJE 2015)
- Attema, Bleichrodt, Gao, Huang, Wakker (AER, 2016)

Other-Regarding Preferences:

- *Geanakoplos, Pearce and Stacchetti, "Psychological Games and Sequential Rationality", *Games And Economic Behavior,* 1989
- *Rabin, "Incorporating Fairness into Game Theory and Economics", *American Economic Review*, 1993
- Dufwenberg and Kirchsteiger, "A Theory of Sequential Reciprocity", *Games and Economic Behavior*, 2004
- Battigalli and Dufwenberg, "Dynamic Psychological Games", *Journal of Economic Theory*, 2009
- Battigalli and Dufwenberg, "Belief-Dependent Motivations and Psychological Game Theory", *JEL*, 2022
- *Levine, "Modeling Altruism and Spitefulness in Experiments", *Review of Economic Dynamics*, 1998
- *Fehr and Schmidt, "A Theory of Fairness Competition and Cooperation", Quarterly Journal of Economics, 1999
- *Binmore and Shaked, "Experimental Economics: Where next?", *Journal of Economic Bahavior and Organization, 2010*
- Fehr and Schmidt, "The Economics of Fairness, Reciprocity and Alruism – Experimental Evidence and New Theories", in: *Handbook of the Economics of Giving, Alruism and Reciprocity, vol 1, 2006*
- Halevy and Peters, "Behavioral Bargaining with Strategic Reference-Point FOrmation" (working paper)

Measures of Choice Consistency

- Afriat, "Efficiency estimation of production function", 1972, *IER*, 13 (3), 568-598.
- Afriat, "On a System of Inequalities in Demand Analysis: and extension of the classical method", *International Economic Review*, 14 (2), 1973.
- Bronars, "The Power of Nonparametric Tests of Preference Maximization", ECMA, 55 (3), 1987, 693-698.
- Beatty and Crawford, "How demanding is the Revealed Preference Approach to Demand", *AER*, 101 (October 2011), 2782-2795.
- Varian, "Goodness-of-fit in optimizing models", *Journal of Econometrics*, 1990, 125-140
- Echenique, Lee, Shum, "The Money-Pump as a measure of Revealed Preference Violations", *JPE,* 119 (6), (2011), 1201-1223
- *Andreoni and Miller, "Giving according to GARP: an experimental test of the consistency of preferences for altruism", ECMA, 70 (2), 737-753, 2002.
- *Choi, Kariv, Muller, Silverman, "Who is (More) Rational?" *AER*, 104 (6), 1518-1550, 2014
- *Halevy, Persitz and Zrill, "Parametric Recoverability of Preferences", *JPE* (2018)

- *Halevy and Mayraz, “Models of Rationality: Act versus Rule-Based Decisions” *REStat* (2024)

Level-k Thinking:

- *Nagel, “Unraveling in Guessing Games: An Experimental Study”, *American Economic Review*, 1995
- Stahl and Wilson, “Experimental Evidence on Players’ models of other players”, Journal of Economic Behavior and Organization, 1994
- Stahl and Wilson, “On Players’ Models of Other Players: Theory and Experimental Evidence”, *Games and Economic Bahavior,* 1995
- *Camerer, Ho, Chong, “A Cognitive Hierarchy Model of Games”, Quarterly Journal of Economics, 2004
- *Wang, Spezio, Camerer, “Pinocchio’s Pupil: Using Eyetracking and Pupil Dilation to Understand Truth-telling in Deception in Sender-Receiver Games”, *American Economic Reivew,* 2010
- *Arad and Rubinstein, “the 11-20 money request gam: a level-k study” (AER, 2012)
- Georganas, Healy and Weber “On the Persistence of Strategic Sophistication (JET, 2015)
- Alaoui and Penta, “Endogenous depth of reasoning” (REStud, 2016)
- *Kneeland, “Identifying Higher-Order Rationality” (ECMA 2015)
- Friedenberg, Kneeland and Kets “Is bounded rationality driven by limited ability”?
- *Halevy, Hoelzemann and Kneeland, “Magic Mirror on the Wall, who is the smartest one of all?” (working paper)

Models of Bounded Rationality:

Deliberate randomization:

- *Agranov and Ortoleva “Stochastic Choice and Preferences for Randomization” (JPE, 2017)
- Cerreia-Vioglio, Dillenberger, Ortoleva, Riella “Deliberately Stochastic”, *AER* 2019
- Agranov, Healy and Nielsen “Stable randomization”, *Economic Journal* 2023

Rational (in)attention:

- *Manzini, Paola and Marco Mariotti, “Sequentially Rationalizable Choice”, *American Economic Review*, 2007
- *Masatlioglu, Yusufcan, Daisuke Nakajima and Erkut Y. Ozbay, “Revealed Attention”, *American Economic Review,* 2012
- Caplin and Dean (TE 2011) + Caplin, Dean and Martin (AER 2011)
- *Matejka and McKay “Rational Inattention to Discrete Choices: A new foundation for the multinomial logit model” (AER, 2015)
- Caplin and Dean “Revealed Preference, Rational Inattention, and Costly Information Acquisition” (AER, 2015)

Introduction to stochastic choice:

- https://scholar.harvard.edu/files/tomasz/files/scnotes90e.pdf

Cognition and complexity:

- *Steiner and Stewart, “Perceiving Prospects Properly,” AER 2016
- *Enke and Graeber. "Cognitive uncertainty." *The Quarterly Journal of Economics* 138, no. 4 (2023): 2021-2067.
- *Khaw, Li, and Woodford. "Cognitive imprecision and small-stakes risk aversion." *The review of economic studies* 88, no. 4 (2021): 1979-2013.
- *Oprea, Ryan. "Decisions under risk are decisions under complexity." *American Economic Review* 114, no. 12 (2024): 3789-3811.
    - Banki, Simonsohn, Walatka and Wu. "Decisions under Risk Are Decisions under Complexity: Comment." *Available at SSRN 5127515* (2025).
    - Oprea, “Initial Reply to Banki, Simonsohn, Walatka and Wu”. Available at SSRN 5182750 (2025)

Replication:

- Camerer *et al* Science, 2016

Critique:

- *Rubinstein, “Dilemmas of an Economic Theorist”, *Econometrica*, 2006
- Rubinstein, “Discussion of ‘Behavioral Economics’” in Advances in Economics and Econometrics, Theory and Applications, ninth World Congress of the Econometric Society
- Gul and Pesendorfer, “The Case for Mindless Economics”
- Pesendorfer, “Behavioral Economics Comes of Age”, 2006
- Fudenberg, “Advances Beyond *Advances in Behavioral Economics”, Journal of Economic Literature*, 2006
- Al Roth’s critique page: http://web.stanford.edu/~alroth/critiques%20of%20experimental%20econ.html