

CES Lectures

Professor Benjamin Bushong

Michigan State University

Gives a series of lectures on

Our Changing Beliefs: Errors, Attention, and (Mis)Learning

- 1 Errors in Statistical Reasoning
- 2 Failures to Notice
- 3 Misinferring, Mislearning, and Misspecification

Dates: Tuesday, 02/06/2026, 10:15 – 11:45

Wednesday, 03/06/2026, 14:15 – 15:45

Tuesday, 09/06/2026, 10:15 – 11:45

Location: CES, Schackstr. 4, 2nd floor, seminar room (214)

Registration for PhD and MQE students: For an official recognition and confirmation of participation of the lecture in your transcript, registration at My ECONPAS the CES Lectures is mandatory. Please adhere to the registration deadline for this course as no registration is possible after this date.

If you cannot register at MyECONPAS please contact the MGSE PhD Office mgse-phd@econ.lmu.de.

Our Changing Beliefs: Errors, Attention, and (Mis)Learning

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In this mini-course, we will examine how people form and update beliefs under the broad umbrella of departures from the Bayesian benchmark. The lectures are designed to give a tour of the existing documented errors people make in statistical reasoning and then provide two specific mechanisms that allow those errors to persist: selective attention, and models of misspecified learning, in which agents update rationally given a model whose specification class does not contain the truth.

Class Schedule

1. Errors in Statistical Reasoning
2. Failing to Pay Attention or Notice
3. Misinferring, Mislarning, and Misspecification

Lecture 1 — Errors in Statistical Reasoning

Main Reading

- Daniel J. Benjamin, "Errors in Probabilistic Reasoning and Judgment Biases," *Handbook of Behavioral Economics*, Volume 2, 69–186, 2019.
- Pietro Ortoleva, "Alternatives to Bayesian Updating," *Annual Review of Economics* 16, 545–570, 2024.

Supplementary Sources

- David M. Grether, "Bayes Rule as a Descriptive Model: The Representativeness Heuristic," *Quarterly Journal of Economics* 95(3), 537–557, 1980.
- Matthew Rabin, "Inference by Believers in the Law of Small Numbers," *Quarterly Journal of Economics* 117(3), 775–816, 2002.
- Matthew Rabin and Joel L. Schrag, "First Impressions Matter: A Model of Confirmatory Bias," *Quarterly Journal of Economics* 114(1), 37–82, 1999.
- Daniel J. Benjamin, Matthew Rabin, and Collin Raymond, "A Model of Nonbelief in the Law of Large Numbers," *Journal of the European Economic Association* 14(2), 515–544, 2016.

- Ned Augenblick, Eben Lazarus, and Michael Thaler, "Overinference from Weak Signals and Underinference from Strong Signals," *Quarterly Journal of Economics* 140(1), 335–401, 2025.
- Pedro Bordalo, John J. Conlon, Nicola Gennaioli, Spencer Y. Kwon, and Andrei Shleifer, "Memory and Probability," *Quarterly Journal of Economics* 138(1), 265–311, 2023.
- Pedro Bordalo, John J. Conlon, Nicola Gennaioli, Spencer Kwon, and Andrei Shleifer, "How People Use Statistics," *Review of Economic Studies*, forthcoming.

Lecture 2 — Failures to Notice

Main Reading

- Joshua Schwartzstein, "Selective Attention and Learning," *Journal of the European Economic Association* 12(6), 1423–1452, 2014.
- Rema Hanna, Sendhil Mullainathan, and Joshua Schwartzstein, "Learning Through Noticing: Theory and Evidence from a Field Experiment," *Quarterly Journal of Economics* 129(3), 1311–1353, 2014.

Supplementary Sources

- Tristan Gagnon-Bartsch, Matthew Rabin, and Joshua Schwartzstein, "Channeled Attention and Stable Errors," working paper, R&R at QJE, 2026.
- Joshua Schwartzstein and Adi Sunderam, "Using Models to Persuade," *American Economic Review* 111(1), 276–323, 2021.
- Benjamin Handel and Joshua Schwartzstein, "Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?" *Journal of Economic Perspectives* 32(1), 155–178, 2018.
- Pedro Bordalo, Nicola Gennaioli, and Andrei Shleifer, "Memory, Attention, and Choice," *Quarterly Journal of Economics*, 2017.
- Xavier Gabaix, "A Sparsity-Based Model of Bounded Rationality," *Quarterly Journal of Economics* 129(4), 1661–1710, 2014.

Lecture 3 — Misinferring, Mislearning, and Misspecification

Main Sources

- Ignacio Esponda and Demian Pouzo, "Berk-Nash Equilibrium: A Framework for Modeling Agents with Misspecified Models," *Econometrica* 84(3), 1093–1130, 2016.
- Paul Heidhues, Botond Kőszegi, and Philipp Strack, "Unrealistic Expectations and Misguided Learning," *Econometrica* 86(4), 1159–1214, 2018.

Supplementary Sources

- Tristan Gagnon-Bartsch and Benjamin Bushong, "Learning with Misattribution of Reference Dependence," *Journal of Economic Theory* 203, 2022.
- Benjamin Bushong and Tristan Gagnon-Bartsch, "Reference Dependence and Attribution Bias: Evidence from Real-Effort Experiments," *American Economic Journal: Microeconomics* 15(2), 271–308, 2023.
- Drew Fudenberg, Giacomo Lanzani, and Philipp Strack, "Limit Points of Endogenous Misspecified Learning," *Econometrica* 89(3), 1065–1098, 2021.
- J. Aislinn Bohren and Daniel N. Hauser, "Social Learning with Model Misspecification: A Framework and a Robustness Result," *Econometrica* 89(6), 3025–3077, 2021.
- Mira Frick, Ryota Iijima, and Yuhta Ishii, "Misinterpreting Others and the Fragility of Social Learning," *Econometrica* 88(6), 2281–2328, 2020.