

## CURRICULUM VITAE

**Deborah G. Mayo**

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### EDUCATION:

- B.A. Clark University, Worcester, Massachusetts, 1974  
Majors: Philosophy, Mathematics  
Honors Thesis: "Goedel's Incompleteness Theorem"
- Ph.D. University of Pennsylvania, Philadelphia, PA, 1979  
Field: Philosophy  
Thesis: "Philosophy of Statistics"  
Advisor: Professor Zoltan Domotor

### PROFESSIONAL APPOINTMENTS:

- September, 1979 - 1987: Assistant Professor, Department of Philosophy, Virginia Polytechnic Institute and State University
- 1987-1997: Associate Professor of Philosophy, Virginia Tech
- 1984-present: Adjunct in the Center for the Study of Science in Society at Virginia Tech
- Visiting Fellow, Center for Philosophy of Science, University of Pittsburgh, Fall 1989
- Visiting Professor at the Institute of Philosophy at the University of Leuven, Belgium, Spring 1994
- 1997-2016: Professor of Philosophy, Virginia Tech
- 2004-2008: Professor, half-appointment in Economics, Virginia Tech
- January 2007-present: Visiting Professor at the Center for the Philosophy of Natural and Social Science (CPNSS) at the London School of Economics and Political Science
- February 2016-present: Professor Emerita of Philosophy, Virginia Tech

### HONORS, AWARDS AND FELLOWSHIPS

- 1998 LAKATOS AWARD in Philosophy of Science (for *Error and the Growth of Experimental Knowledge*): given in recognition of an outstanding contribution to philosophy of science in the form of a book published during the previous six years
- 1997 STURM AWARD for Excellence in Faculty Research (awarded by Phi Beta Kappa)

1991 PHILOSOPHER'S ANNUAL. "Novel Evidence and Severe Tests" (selected as among the ten best to appear in print in philosophy in 1991)

**Undergraduate and Graduate:**

Phi Beta Kappa (junior year) (1973)

Highest Honors in Mathematics (1974)

Magna Cum Laude (1974)

University Fellowship, Univ. of Pennsylvania (1974-1975)

Teaching Fellowships, Univ. of Pennsylvania: Philosophy (1975-77); Statistics, Wharton School (1977-78)

**Fellowships and Grants:**

National Science Foundation Scholar's Award: February 1, 2006-July 31, 2006: SES-0549886: "Learning From Error: A Philosophy of Evidence and Inference"

National Science Foundation Fellowship: Studies in Science, Technology & Society and the Measurement, Methods and Statistics programs, Grant No. SBR-9731505: 1998-2000

Director: National Endowment for the Humanities Summer Seminar: June -July, 1999:  
Project Title: Philosophy of Experimental Inference: Induction, Reliability, and Error

Virginia Tech, Summer Research Stipends (1995, 1996)

National Science Foundation Grant: Studies in Science, Technology & Society (SSTS) Scholars Award (1993)

NEH Summer Stipend (1987)

NEH Fellowship for College Teachers (1988-1989)

NEH Fellowship for College Teachers: (July 1982 -July 1983)

**National Endowment for the Humanities (NEH) Summer Seminars:**

NEH Summer Seminar Fellowship (1980): Univ. of North Carolina, Chapel Hill. Seminar Leader: Michael Resnik. Topic: Philosophy of Mathematics

NEH Summer Seminar Fellowship (1984): University of Rochester. Seminar Leader: Henry Kyburg. Topic: Induction and Scientific Inference

**Other:**

National Security Association (contract through Lockheed Martin: 2002-3), with Aris Spanos

## PUBLICATIONS:

**Books**

*Acceptable Evidence: Science and Values in Risk Management*, co-edited with Rachelle Hollander. Oxford University Press, 1991. Includes chapters and four introductions by the editors.

*Error and the Growth of Experimental Knowledge*. The University of Chicago Press (Series in Conceptual Foundations of Science), June, 1996, 493 pages.

*Error and Inference: Recent Exchanges on Experimental Reasoning, Reliability and the Objectivity and Rationality of Science*, co-edited with Aris Spanos. Cambridge University Press, 2010, 419 pages. (I am the author of 8, and co-author of 3, of the chapters, listed under papers.)

*Statistical Inference as Severe Testing: How to Get Beyond the Statistics Wars*. Cambridge: Cambridge Universe Press, September 2018, 444 pages.

**Papers:**

"The Philosophical Relevance of Statistics." In *PSA 1980*, Volume One. Edited by P. Asquith and R. Giere. East Lansing: PSA, (1980), 97-109.

"Testing Statistical Testing." In *Philosophy in Economics*. Edited by J. C. Pitt. Dordrecht: Reidel, (1980), 175-203.

"In Defense of the Neyman-Pearson Theory of Confidence Intervals." *Philosophy of Science* 48 (1981), 269-280.

"The Foundations of Statistics as a Tool for Technology Studies." *Nature and System* 3 (1981), 109-114.

"On After-Trial Criticisms of Neyman-Pearson Theory of Statistics." In *PSA1982*, Volume One. Edited by P. Asquith and T. Nickles. East Lansing: PSA, (1982), 145-158.

"Against a Scientific Justification of Animal Experiments." In *Ethics and Animals*. Edited by H. B. Miller and W. H. Williams. Clifton, New Jersey: Humana Press, (1983), 339-359.

"An Objective Theory of Statistical Testing." *Synthese* 57 (part II), (1983), 297-340.

"Behavioristic, Evidentialist, and Learning Models of Statistical Testing." *Philosophy of Science* 52 (1985), 493-516.

"Increasing Public Participation in Controversies Involving Hazards: The Values of Metastatistical Rules." In *Science, Technology, and Human Values*, 10(4), (Fall 1985), 55-68.

"Cartwright, Causality, and Coincidence." In *PSA 1986*, Volume One. Edited by A. Fine and P. Machamer. East Lansing: PSA, (1986), 42-58.

- "Understanding Frequency-Dependent Causation." *Philosophical Studies* 49 (1986), 109-124.
- "How Everyone Can Have a Rare Property: Response to Sober on Frequency- Dependent Causation." *Philosophy of Science* 54 (1987), 266-276.
- "Models of Group Selection." *Philosophy of Science* 54 (1987), 515-538. Co-authored with Norman L. Gilinsky.
- "Brownian Motion and the Appraisal of Theories." In *Scrutinizing Science*. Edited by L. Laudan, R. Laudan, and A. Donovan. Dordrecht: Reidel, (1988), 219-243.  
Reprinted by Johns Hopkins University Press, (1992), 219-243.
- "Toward a More Objective Understanding of the Evidence of Carcinogenic Risk." *PSA* 1988, Volume Two. Edited by A. Fine and J. Leplin. East Lansing: PSA, (1989), 489-503.
- "Sociological vs. Metascientific Views of Risk Assessment." In *Acceptable Evidence: Science and Values in Risk Management*. Edited by D. Mayo and R. Hollander. Oxford University Press, (1991), 249-279.  
Reprinted (with modifications) as "Sociological versus Metascientific Views of Technological Risk Assessment" in *Technology, and Values*. Edited by K. Shrader-Frechette and L. Westra. Rowman & Littlefield, (1997).
- "Novel Evidence and Severe Tests." *Philosophy of Science* 58 (1991), 523-552.  
Reprinted in *The Philosopher's Annual* Volume XIV, (1991), 203-232.
- "Did Pearson Reject the Neyman-Pearson Philosophy of Statistics?" *Synthese* 90 (February, 1992), 233-262.
- "The Test of Experiment: C.S. Peirce and E.S. Pearson," in *Charles S. Peirce and the Philosophy of Science: Papers from the 1989 Harvard Conference*. Edited by C. Moore. University of Alabama Press, (1993), 161-174.
- "The New Experimentalism, Topical Hypotheses, and Learning From Error." In *PSA 1994*, Volume One. Edited by D. Hull, M. Forbes and R. Burian. The Philosophy of Science Association, East Lansing: Michigan, (1994), 270-279.
- "Ducks, Rabbits, and Normal Science: Recasting the Kuhn's-Eye View of Popper's Demarcation of Science." *The British Journal for the Philosophy of Science* 47 (1996), 271-290.
- "Severe Tests, Arguing From Error, and Methodological Underdetermination." *Philosophical Studies* 86 (1997), 243-266.
- "Duhem's Problem, The Bayesian Way, and Error Statistics, or 'What's Belief Got To Do With It'?" and "Response to Howson and Laudan." *Philosophy of Science* (June 1997), 222-224 and 323-333.
- "Error Statistics and Learning From Error: Making a Virtue of Necessity." In *Philosophy of Science* 64, Supplemental Issue PSA 1996: Symposia Papers. Edited by L. Darden. (1996), S195-S212.

- Commentary: "Some Problem's With Chow's problems With Power." *Behavioral and Brain Sciences* 21 (April 1998), 212-213. (Discussion of Siu Chow's *Statistical Significance*.)
- "Making Progress with Laudan's Problems: 1977-1997." In *Progress and Its Problems After 20 Years*. The National Autonomous University of Mexico, (1999), in Spanish.
- "Experimental Practice and an Error Statistical Account of Evidence." *Philosophy of Science* 67, (Symposia Proceedings). Edited by D. Howard, (2000), S193-S207.
- "Models of Error and the Limits of Experimental Testing." In *Science at Century's End: Philosophical Questions on the Progress and Limits of Science*. Edited by M. Carrier, G. Massey, and L. Reutsche. University of Pittsburgh/University of Konstanz Press, (2000), 317-344.
- "Science, Error Statistics, and Arguing From Error." In *Logic, Probability, and Science*, Poznan Studies in the Philosophy of the Sciences and the Humanities, Volume 71. Edited by N. Shanks and R. Gardner. Amsterdam: Rudopi, (2000), 95-111.
- "What is This Thing Called Philosophy of Science?" Review symposium of A. Chalmers' *What Is This Thing Called Science?* *Metascience* 9, (July 2000), 179-188.
- "A Post-data Interpretation of Neyman-Pearson Methods Based on a Conception of Severe Testing." *Measurements in Physics and Economics Discussion Paper Series*, History and Methodology of Economics Group, The London School of Economics and Political Science. London: Tymes Court, (August, 2000). Co-authored with Aris Spanos.
- "Principles of Inference and Their Consequences," in *Foundations of Bayesianism*. Edited by D. Cornfield and J. Williamson. Dordrecht: Kluwer, (2001), 381-403. Co-authored with Michael Kruse.
- "Theory Testing, Statistical Methodology, and the Growth of Experimental Knowledge." In *The Scope of Logic, Methodology and Philosophy of Science* (Volume One of the 11<sup>th</sup> International Congress of Logic, Methodology, and Philosophy of Science, Cracow, August 1999. Edited by P. Gardenfors, J. Wolenski, and K. Kijania-Placek. Dordrecht: Kluwer, (2002), 171-190.
- "Novel Work on Problems of Novelty? Comments on Hudson." *Studies in History and Philosophy of Modern Physics* 34, (2003), 131-134.
- "Severe Testing as a Guide for Inductive Learning." In *Probability Is the Very Guide in Life*. Edited by H. Kyburg. Chicago: Open Court, (2003), 89-117.
- "Could Fisher, Jeffreys and Neyman Have Agreed? Commentary on J. Berger's Fisher Address." *Statistical Science* 18, (2003), 19-24.
- "An Error-Statistical Philosophy of Evidence." In *The Nature of Scientific Evidence: Statistical, Philosophical, and Empirical Considerations*. Edited by M. Taper and S. Lele. Chicago: University of Chicago Press, (2004), 79-118.
- "When Can Risk-Factor Epidemiology Provide Reliable Tests?" Commentary: *Epidemiology* 15, (2004), 527-528. Co-authored with Aris Spanos.
- "Methodology in Practice: Statistical Misspecification Testing." *Philosophy of Science: Symposia 2002*, 71, (2004), 1007-1025. Co-authored with Aris Spanos.

- "Peircean Induction and the Error-Correcting Thesis." In *Peirce-spectives on Metaphysics and the Sciences*. Edited by R. Mayorga. Transactions of the Charles S. Peirce Society, (2005), 299-319.
- "Evidence as Passing Severe Tests: Highly Probed vs. Highly Proved." In *Scientific Evidence*. Edited by P. Achinstein. Baltimore: Johns Hopkins University Press, (2005), 95-127.
- "Philosophy of Statistics." In *Philosophy of Science: An Encyclopedia*. Edited by S. Sarkar and J. Pfeifer. London: Routledge, (2005), 802-815.
- "Critical Rationalism and Its Failure to Withstand Critical Scrutiny." In *Rationality and Reality: Conversations with Alan Musgrave*. Edited by C. Cheyne and J. Worrall. Kluwer series Studies in the History and Philosophy of Science. The Netherlands: Springer, (2006), 63-99.
- "Severe Testing as a Basic Concept in a Neyman-Pearson Philosophy of Induction." *The British Journal for the Philosophy of Science*, 57, (June 2006), 323-357. Co-authored with Aris Spanos.
- "Frequentist Statistics as a Theory of Inductive Inference." In *Optimality: The Second Erich L. Lehmann Symposium*. Edited by J. Rojo. Lecture Notes-Monograph Series, Institute of Mathematical Statistics (IMS), Vol. 49, (2006), 77-97. Co-authored with Sir David R. Cox.
- Reprinted in *Error and Inference: Recent Exchanges on Experimental Reasoning, Reliability and the Objectivity and Rationality of Science*. Edited by D. Mayo and A. Spanos. Cambridge: Cambridge University Press (2010), 247-275.
- "Philosophical Scrutiny of Evidence of Risks: From Bioethics to Bioevidence." *Philosophy of Science: Symposia, PSA 2004*, 73(5), (2006), 803-816. Co-authored with Aris Spanos.
- "How to Discount Double-Counting When It Counts: Some Clarifications." *The British Journal for the Philosophy of Science* 59, (2008), 857-879.
- "The Error Statistical Philosopher as Normative Naturalist." *Synthese* 163(3), (2008), 305-314. Co-authored with Jean A. Miller.
- "Some Methodological Issues in Experimental Economics." *Philosophy of Science* 75, (2008), 633-645.
- "Risks to Health and Risks to Science: The Need for a Responsible 'Bioevidential' Scrutiny." *Biological Effects of Low Level Exposures, Newsletter*, 14 (3), 18-22, (2008). Co-authored with Aris Spanos
- Reprinted in *Human & Experimental Toxicology* 27, (2009) 794-799.
- "Learning from Error: The Theoretical Significance of Experimental Knowledge." *The Modern Schoolman*. Guest editor, Kent Staley. 87 (3/4), (March/May 2010). Experimental and Theoretical Knowledge, The Ninth Henle Conference in the History of Philosophy, 191-217.

Chapters in D. Mayo and A. Spanos (eds.) *Error and Inference: Recent Exchanges on Experimental Reasoning, Reliability and the Objectivity and Rationality of Science*, Cambridge: Cambridge University Press (2010):

"Error, Severe Testing, and the Growth of Theoretical Knowledge," 28-57.

"Can Scientific Theories be Warranted with Severity? Exchanges with Alan Chalmers," 73-87.

"Towards Progressive Critical Rationalism: Exchanges with Alan Musgrave," 115-124.

"An Ad Hoc Save of a Theory of Adhocness? Exchanges with John Worrall," 155-169.

"Sins of the Epistemic Probabilist: Exchanges with Peter Achinstein," 189-201.

"Explanation and Testing: Exchanges with Clark Glymour," 351-363.

"Error and the Law: Exchanges with Larry Laudan," 397-409.

"An Error in the Argument from Conditionality and Sufficiency to the Likelihood Principle," 305-314.

Chapters jointly authored in *Error and Inference* (2010):

"Introduction and Background," 1-27. Co-authored with Aris Spanos.

"Frequentist Statistics as a Theory of Inductive Inference," 247-275. (Reprinted from D. Mayo and D. R. Cox (2006)). Co-authored with David R. Cox.

"Objectivity and Conditionality in Frequentist Inference," 276-304. Co-authored with David R Cox.

"Error Statistics." In *Handbook of Philosophy of Science, Volume 7: Philosophy of Statistics*. Edited by D. Gabbay, P. Thagard, and J. Woods. The Netherlands: Elsevier, (2011), 153-198. Co-authored with Aris Spanos

"The Objective Epistemic Probabilist and the Severe Tester." In *Philosophy of Science Matters: The Philosophy of Peter Achinstein*. Edited by G. Morgan. Oxford: Oxford University Press, (2011), 135-150.

"Statistical Science and Philosophy of Science: Where Do/Should They Meet in 2011 (and beyond)?" *Rationality, Markets and Morals (RMM): Studies at the Intersection of Philosophy and Economics*, 2, (2011), 79–102.

"A Statistical Scientist Meets a Philosopher of Science: A Conversation between Sir David Cox and Deborah Mayo (as recorded, June 2011)." *Rationality, Markets and Morals (RMM): Studies at the Intersection of Philosophy and Economics*, 2, (2011), 103-114. Co-authored with Sir David R. Cox.

"How Can We Cultivate Senn's Ability," Comment on Stephen Senn, "You May Believe You are a Bayesian But You're Probably Wrong." *Rationality, Markets and Morals (RMM): Studies at the Intersection of Philosophy and Economics*, 3, (2012), 14-18.

"Statistical Science and Philosophy of Science Part 2: Shallow versus Deep Explorations." *Rationality, Markets and Morals (RMM): Studies at the Intersection of Philosophy and Economics*. Volume 3, (2012), 71-107.

- "The error-statistical philosophy and the practice of Bayesian statistics: Comments on Gelman and Shalizi: 'Philosophy and the practice of Bayesian statistics'", *British Journal of Mathematical and Statistical Psychology* 66, (2013), 57-64. (Invited Commentary on A. Gelman and C. Shalizi: "Philosophy and the Practice of Bayesian Statistics" (with discussion)).
- "Discussion: Bayesian Methods: Applied? Yes. Philosophical Defense? In Flux", *The American Statistician*, 67, (2013), 11-15. (Invited Commentary on A. Gelman and C. Robert "'Not only defended but also applied': The perceived absurdity of Bayesian inference" (with discussion)).
- "Presented Version: On the Birnbaum Argument for the Strong Likelihood Principle." In *JSM Proceedings*, Section on Bayesian Statistical Science. Alexandria, VA: American Statistical Association, (2013), 440-453.
- "Some Surprising Facts about (The Problem of) Surprising Facts," *Studies in History and Philosophy of Science*, 45 (1), (2014), 79-86. (Special Section: *Novel Predications*, Ioannis Votsis, Ludwig Fahrbach, and Gerhard Schurz (eds.)).
- "Learning from Error: How Experiment Gets a Life (of its Own)". In *Error and Uncertainty in Scientific Practice*. Edited by M. Boumans, G. Hon & A. C. Petersen. London: Pickering and Chatto, (2014), 57-77.
- "On the Birnbaum Argument for the Strong Likelihood Principle," (with discussion & rejoinder) *Statistical Science*, 29(2), (2014), 227-239, 261-266.
- "Error Statistical Modeling and Inference: Where Methodology Meets Ontology". *Synthese*, 192(11), (2015), 3533-3555. Co-authored with Aris Spanos.
- "Don't Throw out the Error Control Baby with the Bad Statistics Bathwater: A Commentary" on R. Wasserstein and N. Lazar: "The ASA's Statement on *P*-values: Context, Process, and Purpose", *The American Statistician* 70(2) (2016).
- "Justify Your Alpha", *Nature Human Behavior* 2, (2018), 168-171 Co-authored with Daniel Lakens et al. (a megateam of 85 authors)
- "Experimental Flukes and Statistical Modeling in the Higgs Discovery," in Isabelle Peschard and Bas van Fraassen (eds.), *The Experimental Side of Modeling in Minnesota Studies in the Philosophy of Science*, University of Minnesota Press, (2018), 189-217.

### Reprinted:

- "A Critique of Salmon's Bayesian Way" (from Chapter 2, 112-127 of Mayo 1996). In M. Curd, J. Cover, and C. Pincock eds., *Philosophy of Science: The Central Issues* (2<sup>nd</sup> edition), 2013: 550-564.

### Translated Chapter:



"Learning From Error," Chapter 1 of *Error and the Growth of Experimental Knowledge* (Mayo, 1996) has been translated into Spanish as "Capítulo XIV Aprender del error" in Victòria Camps, Anna Estany i Mercè Izquierdo (Eds.), *Error y Conocimiento: la Gestión de la Ignorancia desde la Didáctica, la Ética y la Filosofía*, Comares: Granada, (2012).

#### **Other:**

National Security Agency Research Report: "Peircean Reasoning Project: "Peircean Induction, Severe Testing, and Statistical Model Validation." (2003). Co-authored with Aris Spanos.

Exploratory Software for Confidence Intervals (ESCI): "Mayo & Spanos: Excel program for Calculating Confidence Intervals and Severity." (2002) Co-developed with G. Cumming and A. Spanos. (Project stemming from work at NCEAS, Santa Barbara.)

#### COLLOQUIA AND SEMINAR PRESENTATIONS

- 2018 "Statistical Inference as Severe Testing (How It Gets You Beyond the Statistics Wars)." At the Foundations of Probability Seminar, Rutgers University, (December 3, 2018).
- 2017 Invited participant. At the *Roundtable on Reproducibility and a Stricter Threshold for Statistical Significance*: Dan Benjamin (University of Southern California), Daniel Lakens (Eindhoven University of Technology), and Eric-Jan Wagenmakers (University of Amsterdam), hosted by International Methods Colloquium, an online colloquium for quantitative social science methodology supported by the National Science Foundation and Rice University, (October 27, 2017).
- 2016 "The Statistical Replication Crisis: Paradoxes and Scapegoats." Special Invited Seminar, Emory University, School of Medicine, Graduate Division of Biomedical and Biomedical Sciences (Nov 3, 2016).
- 2016 "The Statistical Replication Crisis: Paradoxes and Scapegoats." Popper Seminar, London School of Economics and Political Science. (May 10, 2016).
- 2016 "How to Stop Refighting the Statistics Wars." At the Studies of Science and Technology Colloquium for the Minnesota Center for the Philosophy of Science, University of Minnesota, Twin Cities Campus. (April 8, 2016).
- 2016 "Severe Testing and the Foundations of Statistics." At the Minnesota Center for Philosophy of Science Discussion Group (April 8, 2016).
- 2014 "Probing With Severity: Beyond Bayesian Probabilism and Frequentist Performance." At the Department of Statistics and Biostatistics Seminar series, Rutgers University. (December 3, 2014).

- 2013 Seminars on “Philosophy of Statistics.” At A. Spanos seminar: Philosophical Foundations of Econometrics, Economics Dept., Virginia Tech. (Spring 2013).
- 2012 “How Experiment Got a Life (of its own).” Popper Seminar, London School of Economics and Political Science. (March 6, 2012).
- 2011 “Hypotheses Testing from an Error Statistical Perspective.” At the Faculty of Sciences, National University of Distance Learning, Madrid, Spain, (December 14, 2011).
- 2009 "An Error Statistical Philosophy." At the Methodology Institute, the London School of Economics and Political Science, (March 2009).
- 2008 "The Error Statistical Philosophy." At the University of Cambridge, MRC Biostatistics Unit, Institute of Public Health, (December 9, 2008).
- 2008 "Four Waves in Philosophy of Statistics." At the University of Kent, Department of Philosophy, (December 2008).
- 2007 “Some Remarks on Error and the Growth of Experimental Knowledge.” At George Mason University, (April 2007).
- 2005 “Frequentist Statistics as a Theory of Inductive Inference: When Should We Take Account of Selection Effects and Non-Novel Data?” (co-author D.R. Cox). At the London School of Economics (Evidence Series), (May 11, 2005).
- 2004 “An Error Statistical Account of Evidence: Highly Probable vs. Highly Probed.” At Indiana University, HPS Department, (September 24, 2004).
- 2003 “Theory Testing, Statistical Methodology, and the Growth of Experimental Knowledge: The Case of General Relativity.” At an Invited colloquium, at the University of Notre Dame, (March 2003).
- 2002 “Induction as Severe Testing.” At an Invited Colloquium at the University of Texas at Austin, (August 2002).
- 2001 “Severe Tests: Concepts and Some Applications.” At NASA’s Langley Research Center, (November 16, 2001).
- 2001 “Induction as Severe Testing” and “Using Low Level Tests to Probe High Level Theories: Severity Without Comparativism.” At a Colloquia at Rice University, (April 23, 2001).
- 2001 Talk on Learning From Error for Cytec Industries Lab, Stamford, Connecticut, (July 2001).

- 2000 "A Post-Data Interpretation of Neyman Pearson Statistics Based on a Conception of Severity", jointly with Aris Spanos. At Oxford University, Nuffield College, (May 10, 2000).
- 2000 "Neyman-Pearson Methods as Tools for Severe Testing: Beyond Size and Power", jointly with Aris Spanos. At the London School of Economics and Political Science (group on Measurement in Economics and Physics, (May 9, 2000).
- 2000 "Ducks, Rabbits, and Normal Science: Recasting the Kuhn's-eye View of Popper's Demarcation of Science." At the Philosophy Department Colloquium series, the University of Pennsylvania (sponsored by the Fund for the Education of Women of the University of Pennsylvania), (March 23, 2000).
- 2000 "Duhem's Problem, the Bayesian Way, and Error Statistics." At the Philosophy Department Colloquium series, the University of Pennsylvania (sponsored by the Fund for the Education of Women of the University of Pennsylvania), (March 24, 2000).
- 1999 "Errors, Statistics, and the Philosophy of Evidence." At Colloquium of the Economics Department, Virginia Tech, (October 1999).
- 1999 "Theory Testing and Experimental Knowledge." At the Ohio University Lectures in the History and Philosophy of Science, (October 15, 1999).
- 1999 "Errors, Statistics, and the Philosophy of Evidence." Lakatos Award lecture at the London School of Economics and Political Science, (March 17, 1999).
- 1999 "Theory Testing and the Growth of Experimental Knowledge." Popper Lecture Series of the Department of Philosophy, Logic, and Scientific Method at the London School of Economics and Political Science, (March 16, 1999).
- 1998 "Statistical Controversies and the (Error Statistical) Philosophy of Science." At the Colloquium Series of the Department of Statistics, North Carolina State University, (March 1998).
- 1997 "Duhem's Problem, The Bayesian Way, and Error Statistics, or What's Belief Got to Do With It?" At the Center for the History and Philosophy of Science, University of Maryland, (November 1997).
- 1997 Presenter at the Pittsburgh-Konstanz Colloquium on "The Limits of Science," at the University of Pittsburgh, (October 1997).
- 1997 "Duhem's Problem, The Bayesian Way, and Error Statistics." At the Philosophy Department colloquium series, the University of Minnesota, (April 18, 1997).
- 1996 "Duhem's Problem, The Bayesian Way, and Error Statistics, or What's Belief Got to Do With It?" At the Philosophy Department colloquium series, the University of Rochester, (November 13, 1996).

- 1996 "Learning From Error." Popper Lecture Series of the Department of Philosophy, Logic, and Scientific Method at the London School of Economics and Political Science, (June 11, 1996).
- 1996 "Models of Experimental Testing: The Case of Jean Perrin and Brownian Motion." At the International Workshop on Tests, Laws and Chances at the London School of Economics and Political Science, (June 14, 1996).
- 1996 "Error Statistics, Duhem's Problem, and Methodological Underdetermination." Popper Lecture Series of the Department of Philosophy, Logic, and Scientific Method at the London School of Economics and Political Science, (June 18, 1996).
- 1996 "Values in the Scientific Determination of Risk: Is There a Need for a Methodological Scrutiny?" At the University of Puerto Rico, Mayaguez, (April 1996).
- 1994 "Ducks, Rabbits, and Normal Science: Recasting the Kuhn's-Eye View of Popper's Demarcation of Science." At the public lecture series at The Institute of Philosophy, The Catholic University of Leuven, (February 24, 1994).
- 1994 "Understanding Frequency-Dependent Causation." At the Colloquium series of the Institute of Logic and Philosophy of Science, The Catholic University of Leuven, (March 16, 1994).
- 1994 "Severe Tests and Underdetermination of Theories by Data." At the Lecture Series of the Belgian Society for Logic and Philosophy of Science, Brussels, (April 2, 1994).
- 1994 "Normal Testing as a Way to Demarcate Science." At Centenary College, (May 1994).
- 1994 "Duhem's Problem, The Bayesian Way, and Error Statistics." At the 35<sup>th</sup> Annual Lecture Series of the Center for Philosophy of Science, University of Pittsburgh, (November 18, 1994).
- 1989 "Novel Evidence and Severe Tests." At the Center for Philosophy of Science, Second In-House Conference, University of Pittsburgh, (October 1989).
- 1989 "The Test of Experiment: C.S. Peirce and E.S. Pearson." At the Center for Philosophy of Science, Lunchtime Colloquium, University of Pittsburgh, (November 1989).
- 1988 "Novel Evidence and Severe Tests." At a Colloquium of the Department of Philosophy, University of Hawaii, (March 1988).

- 1987 "Novel Evidence and Severe Tests." At a Colloquium of the Committee for History and Philosophy of Science, University of Maryland, (November 1987).
- 1986 "Understanding the Evidence in the Formaldehyde Controversy: A Role for Science and Technology Studies." At a Rutgers/ New Jersey Institute of Technology Faculty Seminar in Science and Technology Studies, Newark, (December 1986).
- 1984 "Understanding Frequency-dependent Causation: or How Butterflies Deceive." At a Colloquium of the Philosophy Department, University of Rochester, (July 1984).

#### PAPERS PRESENTED AT PROFESSIONAL CONFERENCES AND WORKSHOPS

- 2018 Invited speaker, "Statistical Inference as Severe Testing (How It Gets You Beyond the Statistics Wars)." At Quantitative Research Methods Workshop, Yale University, New Haven, Connecticut, (November 29, 2018).
- 2018 Invited speaker, "What do we learn from the replication crisis?" In the plenary session, *Significance Tests: Rethinking the Controversy*, with Sir David Cox (Oxford University), Richard Morey (Cardiff University), and Aris Spanos (Virginia Tech). At the 2018 Royal Statistical Society (RSS) annual conference, University of Cardiff, Wales, (September 5, 2018).
- 2018 Keynote Speaker, "Replication Crises and the Statistics Wars: Hidden Controversies." At *Reproducibility and Replicability in Psychology and Experimental Philosophy*, University College London, London, England, (June 14, 2018).
- 2018 Invited Speaker, "Your Data-Driven Claims Must Still Be Probed Severely." At the *American Statistical Association Conference on Statistical Learning and Data Science (SLDS)/Nonparametric Statistics* conference in the symposium "Philosophy of Science and the New Paradigm of Data-Driven Science", Columbia University, NYC, (June 4, 2018).
- 2018 Invited Speaker, "Everything Old is New Again." At *Measurement and Confirmation: A Symposium in Honor of the Retirement of Zoltan Domotor*, University of Pennsylvania (April 20, 2018).
- 2017 "Statistical Skepticism: How to Use Significance Tests Effectively." In the Session "What are the best uses for P-values?" at the American Statistical Association Symposium on Statistical Inference (SSI): "A World Beyond  $P < .05$ ", (October 12, 2017).
- 2017 Invited speaker, "Fusion Confusion? Comments on Nancy Reid: 'BFF Four—Are we Converging?'" At The Fourth Bayesian, Fiducial and Frequentist Workshop (BFF4), Harvard University, Cambridge, MA, (May 2, 2017).

- 2017 Invited speaker, “Probing with Severity: Beyond Bayesian Probabilism and Frequentist Performance.” At the Workshop on Probability and Learning, Philosophy Department, Columbia University, New York City, (April 8, 2017).
- 2017 Invited speaker, “Severe Testing: The Key to Error Correction.” At the Boston Colloquium for Philosophy of Science: *Understanding Reproducibility and Error Correction in Science*, Boston University, Boston, MA, (March 17, 2017).
- 2016 “Controversy Over the Significance Test Controversy.” In the symposium: “Philosophy of Statistics in the Age of Big Data and Replication Crises,” lead organizer with G. Gigerenzer (Director of Max Planck Institute for Human Development, Berlin), A. Gelman (Statistics & Political Science, Columbia) and C. Glymour (Alumni Univ. Prof in Philosophy, Carnegie Mellon Univ.) at the Philosophy of Science Association (PSA) Biennial Meeting, Atlanta, Georgia (November 4, 2016).
- 2016 “Using Philosophy of Statistics to Make Progress in the Replication Crisis in Psychology,” (with Caitlin Parker). At the Society for Philosophy of Science in Practice (SPSP) 2016 conference, Rowan University, Glassboro, NJ, (June 17, 2016).
- 2015 Invited speaker, “Replication Research Under an Error Statistical Methodology.” Pre-conference workshop on “Replication in the Sciences,” organized by E. Machery (University of Pittsburgh). Co-participants: A. Gelman (Columbia), U. Simonsohn (Pennsylvania State University), and T. Yarkoni (University of Texas, Austin) at the 41<sup>st</sup> annual meeting of Society for Philosophy and Psychology, Duke University, Durham, NC, (June 3, 2015).
- 2015 Invited speaker, “Error Statistical Control: Forfeit at your Peril.” At the Association for Psychological Science (APS) 2015 conference. Symposium: “The Philosophy of Statistics: Bayesianism, Frequentism and the Nature of Inference,” organized by R. Kievit (Cambridge). Co-symposiasts: A. Gelman (Columbia) and S. Senn (Competence Center for Methodology and Statistics (CCMS) Luxembourg), (May 23, 2015).
- 2014 “Statistical Flukes, the Higgs Discovery, and 5 Sigma.” In the symposium: “How Many Sigmas to Discovery? Philosophy and Statistics in the Higgs Experiments,” lead organizer with R. Cousins, Physics UCLA; A. Franklin, Physics, U of Colorado and K. Staley, Philosophy, Saint Louis Univ., at the Philosophy of Science Association (PSA) meeting, Chicago, Illinois, (November 8, 2014).
- 2014 “The Science Wars & the Statistics Wars: Scientism, Popular Statistics and the Philosophers.” At The Scientism Workshop, The Graduate Center, City University of New York City, (May 17, 2014).
- 2014 “Is the Philosophy of Probabilism an Obstacle to Statistical Fraud Busting?” At the Boston Colloquium for Philosophy of Science: “Revisiting the Foundations of Statistics in the Era of Big Data: Scaling Up to Meet the Challenge,” Boston University, (February 21, 2014).

- 2013 “On the Birnbaum Argument for the Strong Likelihood Principle.” At the Joint Statistical Meeting—Section on Bayesian Statistical Science, Montréal, Québec, Canada, (August 3-8, 2013).
- 2013 “Methodology and Ontology in Statistical Modeling: Some Error Statistical Reflections” (with Aris Spanos). At the conference “Ontology and Methodology,” Virginia Tech, (May 4-5, 2013).
- 2012 “Learning From Error in RCT4D.” In the symposium: “Development: Knowing What Works, Evidence, Evaluation, and Experiment,” co-organized with Nancy Cartwright, at the Biennial meeting of the Philosophy of Science Association, San Diego, California, (November 15-18, 2012).
- 2012 “Error Correction, Severity, and Truth: What’s Simplicity Got to Do With It?” At the Carnegie Mellon University Workshop “Foundations for Ockham’s Razor,” Pittsburgh, Pennsylvania, (June 22-24, 2012).
- 2012 (Invited Keynote Speaker) “How Experiment Got a Life (of its own).” Popper Seminar, London School of Economics, London, England, (March 6, 2012).
- 2011 “Are Frequentist Significance Tests Inconsistent? Breaking through "Birnbaum's Breakthrough.” At the conference “The Controversy about Hypothesis Testing,” Faculty of Sciences, National University of Distance Learning, Madrid Spain, (December 15-16, 2011).
- 2011 “Learning from Error: How Experiment Got a Life (of Its Own).” At the conference “Error in the Sciences,” Lorentz Center, University of Leiden, The Netherlands. (Richard Gill commentator) (October 24-28, 2011).
- 2011 Keynote Speaker, “How Experiment Gets a Life (of Its Own).” At the PSX-Second International Workshop on the Philosophy of Scientific Experimentation, University of Konstanz, (October 21-22, 2011).
- 2011 Invited speaker, “How Experiment Gets a Life of its Own”. At the Workshop "The Experimental Side of Modeling (3)," San Francisco State University, California, (Sept 16-17, 2011).
- 2011 “You Cannot Get Deep Structure With Shallow Methods.” At the Conference “Experimental Knowledge and the Deep Structure of the World,” Virginia Tech, (April 29, 2011).
- 2011 Keynote speaker, “Formal Epistemology and the Foundations of Statistics.” At the 8th Formal Epistemology Workshop 2011, at the University of Southern California, (May 19, 2011).
- 2011 Keynote speaker, “Some Surprising Facts About Surprising Facts.” At the conference, Novel Predictions, Dusseldorf, Germany, (February 25, 2011).

- 2010 “Duhem’s Problem: What Might a General Experimentalist Approach Look Like?” At the conference, Philosophy of Scientific Experimentation: A Challenge to Philosophy of Science. At the University of Pittsburgh, (October 15-17, 2010).
- 2010 “Statistical Science and Philosophy of Science: Where Do/Should They Meet in 2010 and Beyond.” At the conference, Statistical Science Meets Philosophy of Science: Where Do/Should They Meet in 2010 (and Beyond)? At the London School of Economics, (June 21-22, 2010).
- 2010 “The Confluence Between Statistical Science and Philosophy of Science: Shallow vs. Deep Explorations.” At the conference, Statistical Science Meets Philosophy of Science: Where Do/Should They Meet in 2010 (and Beyond)?, at The London School of Economics and Political Science, (June 21-22, 2010).
- 2010 Keynote speaker, "Learning From Error: The Theoretical Significance of Experimental Knowledge." At the Wade Memorial Lecture presented at the Henle Conference on Experimental and Theoretical Knowledge, at the University of St. Louis, (March 2010).
- 2009 "A Philosophy of Evidence Relevant for Regulation." At the conference of the Society for Philosophy of Science in Practice (SPSP), University of Minnesota, (June 2009).
- 2009 "Models of Error" At the conference on Modeling and Simulation, University of Virginia, (March 2009).
- 2008 Keynote speaker, "Confirmation Theory and Statistical Inference," at the annual conference of the British Society for the Philosophy of Science, at the University of Saint Andrews, Scotland, (July, 2008).
- 2008 Keynote Speaker, "Error Statistics," at the Second Meeting on Philosophy, Probability and Scientific Method, Valencia, Spain, (October 30-31, 2008).
- 2007 "Severe Local Storms With a Slight Chance of Error: Remarks from Philosophy." At the conference, “Meteorology Meets Decision Science: Risk, Forecast and Decision,” Met Office, Exeter, England, (June 2007).
- 2007 "Three Battle Periods in the Philosophy of Statistics Wars." In the conference: The War on Induction at the Johns Hopkins Center for History and Philosophy of Science, (March 2007).
- 2007 "Double Trouble: Use-constructing Methods and Their Errors." In a conference: Confirmation, Induction and Science at the Center for Philosophy of Natural and Social Science, London School of Economics and Political Science, (March 2007).
- 2006 "External Validity and the Rational Scrutiny of Models of Rationality." In a PSA 2006 Symposium on Philosophical Issues in Experimental Economics, (November 2006).
- 2006 “Severe Testing, Error Statistics, and the Growth of Theoretical Knowledge.” At the First Symposium on Philosophy, History and Methodology of Experimental Reasoning, Reliability, Objectivity & Rationality (E.R.R.O.R.): Induction, Statistics, Modeling. I also led 2 panel discussions. Virginia Tech, (June 1-5, 2006).



- 2005 “Frequentist Statistics as a Theory of Inductive Inference” (co-author D.R. Cox). At the Econometric Society World Congress, London, (August 2005).
- 2005 “Philosophy of Experimental Economics - a menu of issues” and “The Problem of External Validity in Experimental Economics.” At the Workshop on the Philosophy & Methodology of Experimental Economics, Blacksburg, Virginia, (June 26-30, 2005).
- 2005 Discussant and presenter of R. Sugden, “Credible worlds: the status of theoretical models in economics” at the Buchanan conference, (“If Men Were Angels”—The Role of Counterfactual Motivational Assumptions in Social Analysis.”) Economics Department, Virginia Tech, (May 2005).
- 2005 “Causation and Explanation in the Social Sciences,” Discussant at a Workshop for the Committee on Standards of Evidence and the Quality of the Behavioral and Social Science Research of the National Research Council's Division of Behavioral and Social Sciences and Education (DBASSE), Irvine, (April 1, 2005).
- 2004 "Philosophers of Science and Statistical Controversies in Ecological Testing," (with Aris Spanos), in a symposium: Can Philosophy of Science Offer Help in Resolving Contemporary Biological Controversies? At the Biennial meeting of the Philosophy of Science Association, Austin, (November 20, 2004).
- 2004 “Evidence and the Burden of Proof: Implications of Differing Standards in Environmental and Other Policy Decisions.” At the Association for Public Policy and Management (APPAM) meeting, (October 29, 2004).
- 2004 “The Theory of Statistics as the ‘Frequentist’s’ Theory of Inductive Inference.” In a session on Philosophy of Statistics, the Second Erich Lehmann Symposium, (May 22, 2004).
- 2004 Discussant and presenter of H. Kliemt: “Terrorism and its bystanders—Free-riders and zealots, knaves and knights.” In a workshop, “Terrorism”, Buchanan Colloquium, Economics Department, Virginia Tech, (May, 2004).
- 2004 “Making Inferences with Integrity: Getting Beyond Some Obstacles in the Policy vs. Science Debates.” At the AAAS meeting, presented by R. Hollander, (March, 2004).
- 2003 Discussant in a workshop, “The Status of the Status Quo”, Buchanan Colloquium, Economics Department, Virginia Tech, (May, 2003).
- 2003 “A Severe Testing Account of Evidence.” At the conference on Scientific Evidence, John Hopkins University (Center for History and Philosophy of Science), (April, 2003).
- 2002 “A Post-Data Interpretation of Neyman-Pearson Methods Based on a Conception of Severe Testing” (with Aris Spanos). At the Meeting of the American Statistical Association (Joint Statistical Meeting), (August, 2002).
- 2002 “Methodology in Practice: Statistical Misspecification Testing” (with Aris Spanos). In the symposium Methodology in Practice: A New Normativity in Philosophy of Science? at the Biennial meeting of the Philosophy of Science Association, Milwaukee, (November, 2002).

- 2002 “An Error Statistical Philosophy of Science: Answering the Criticisms of Statistical Tests.” Invited lecture at the colloquia series of the National Center for Ecological Analysis and Synthesis (NCEAS), (November, 2002).
- 2002 “A Severe Testing Interpretation of Neyman-Pearson Tests.” In the workshop “Setting Priorities and Making Decisions for Conservation Risk Management” at the National Center for Ecological Analysis and Synthesis (NCEAS), (November, 2002).
- 2002 “Peircean Induction, Severe Testing, and Statistical Model Validation.” Presentation at the National Security Agency (as part of the Peircean Reasoning Project contract), (November, 2002).
- 2002 Presentation at a workshop on risk assessment funded by the National Center for Ecological Analysis and Synthesis NCEAS in Santa Barbara, California, (November 10-15, 2002).
- 2002 “A Severe Testing Interpretation of Neyman-Pearson Statistics.” (with Aris Spanos). At the Meeting of the American Statistical Association, (August 14, 2002).
- 2002 “Testing Assumptions of Statistical Testing” (with Aris Spanos). At a symposium "Methodology in Practice: A New Normativity in Philosophy of Science?" at the Philosophy of Science Association meeting, (November 2002).
- 2001 “Peircean Induction and a Self-Correcting Methodology” and “Where We Might Go Next to Developed Improved Strategies for Error Detection.” At the National Security Association workshop: The Modeling Of The Human Reasoning Process and The Scientific Philosophy Of Charles Sanders Peirce, (December 11 and 12, 2001).
- 2001 Invited speaker, "Context of Justification and Context of Discovery." At the Hans Reichenbach Conference in Philosophy of Science, Washington University St. Louis, (October 11-12, 2001).
- 2001 “Error and the Growth of Experimental Knowledge” At the Architectural Research Centers Consortium Conference, the College of Architecture and Urban Studies, Virginia Tech, (April 9, 2001).
- 2001 “Error Statistics.” As a participant and speaker at the National Center for Ecological Analysis and Synthesis (NCEAS) workshop: “Complex Systems, Complex Problems: Making Inference from Science to Policy”, Santa Barbara, California, (February 3-7, 2001).
- 2000 "Error Statistics and Beyond." A discussion of the themes contained in 4 papers to be in a symposium, "Error Statistics and Beyond." (The 4 papers represent research conducted by participants of my National Endowment for the Humanities Seminar in June-July, 1999.) At the Philosophy of Science Association meeting, (November 2000).
- 2000 “Knowledge and Uncertainty from the Perspective of a Philosopher of Science.” At the Alfred P. Sloan Foundation workshop: The Known, the Unknown, and the

- Unknowable: What Have We Learned? What Should Be Explored? Columbia University, (October 26-27, 2000).
- 2000 “Induction as Severe Testing” with Henry Kyburg, Jr. commenting. At the Chapel Hill Colloquium in Philosophy, (October 8, 2000).
- 2000 “Taking Bayesian Criticisms Seriously.” At the International conference on Philosophical Aspects of Bayesianism, King’s College, Centre for Philosophical Studies, (May 12, 2000).
- 2000 “Ducks, Rabbits, and Normal Science: Recasting the Kuhn's-eye View of Popper's Demarcation of Science.” At the Conference: Kuhn Reconsidered, Virginia Tech, (March, 2000).
- 2000 “Ducks, Rabbits, and Normal Science: Recasting the Kuhn's-eye View of Popper's Demarcation of Science.” At the Philosophy Department colloquium series, the University of Pennsylvania, (sponsored by the Fund for the Education of Women of the University of Pennsylvania), (March 23, 2000).
- 2000 “Uncertainty and Values in the Scientific Assessment of Risk.” At the Society for Risk Analysis conference: Uncertainty: Its Nature, Analytical Treatment, and Interpretation, Arlington, Virginia, (February, 2000).
- 1999 “Theory Testing, Statistical Methodology, and Experimental Knowledge.” At the 11<sup>th</sup> International Congress of Logic, Methodology and Philosophy of Science (International Union of History and Philosophy of Science), Cracow, Poland. (August, 1999).
- 1999 “Uncertainty and Values in the Scientific Assessment of Risk”. Symposium on Ethics and Responsibility in Science.” At the 11<sup>th</sup> International Congress of Logic, Methodology and Philosophy of Science (International Union of History and Philosophy of Science), Cracow, Poland. (August, 1999)
- 1998 “Experimental Practice and the Reliable Detection of Errors.” In a symposium, “Evidence, Data Generation, and Scientific Practice: Toward a Reliabilist Philosophy of Experiment” at the 1998 Meeting of the Philosophy of Science, (October, 1998).
- 1998 “An Error Statistical Philosophy of Evidence.” At the Ecological Society of America (ESA) Conference, Baltimore, Maryland, (August, 1998).
- 1998 “Statistical Models in Their Relation to Reality.” In a workshop, Statistical Modeling, at the conference, Modeling and Simulation: Theoretical Aspects at the University of Virginia, (March, 1998).
- 1997 “Models of Error and the Limits of Experimental Testing.” At the Pittsburgh-Konstanz conference: “Science at the Millennium: The Limits of Science” at the Center for the Philosophy of Science, the University of Pittsburgh, (October, 1997).

- 1997 "Making Progress with Laudan's Problems: 1977-1997." At an International Conference in Honor of Larry Laudan, "Progress and its Problems After 20 Years," at the National Autonomous University of Mexico, (July, 1997).
- 1997 "Objectivity and Ethics in Risk Assessment: Clean Hands vs. Dirty Hands in Interpreting Risk Evidence." At the Biennial International Meeting of the Risk Assessment Policy Association, (March 6, 1997).
- 1996 "Error Statistics and Learning from Error: Making a Virtue of Necessity". At a Symposium, Philosophy of Statistics and Epistemology of Experiment: Bayesian vs. Error Statistical Approaches, at the 1996 meeting of the Philosophy of Science Association, (November 1, 1996).
- 1996 "Science, Error Statistics, and Arguing from Error." At the meeting of the Society for Exact Philosophy, (October 11, 1996).
- 1996 "Values in the Scientific Determination of Risk: Is There a Need for a Methodological Scrutiny?" At the University of Puerto Rico, (April, 1996).
- 1994 "The New Experimentalism, Topical Hypotheses, and Learning from Error." At the 1994 Meeting of the Philosophy of Science Association, (October 1994).
- 1989 "The Test of Experiment: C.S. Peirce and E.S. Pearson." At the Charles S. Peirce Sesquicentennial International Congress at Harvard University, (September 1989).
- 1988 "Toward a More Objective Understanding of the Evidence in Carcinogenic Risk Assessment." At Philosophy of Science Association meeting, (October 1988).
- 1987 "Did Pearson Reject the Neyman-Pearson Philosophy of Statistics?" At the meeting of the Society for Exact Philosophy, St. Johns, Newfoundland, (August 1987).
- 1986 "Toward a More Objective Use of Evidence in Hazard Assessment: The Case of Formaldehyde." At the conference of the American Association of the Advancement of Science (AAAS), Philadelphia, (May 1986).
- 1986 "Testing the Theses On Theory-Testing". At The Conference, Testing Theories of Scientific Change, Center for the Study Of Science in Society, Virginia Tech, (October 1986).
- 1985 "Policy Values and Epistemic Values." At the meeting of the Society for Social Studies of Science, Troy, (October 1985).
- 1984 "Understanding Frequency-dependent Causation." At the Eastern Division Meeting of the American Philosophical Association, New York City, (December 1984).
- 1982 "On After-Trial Criticisms of Neyman-Pearson Theory of Statistics." At the meeting of the Philosophy of Science Association, Philadelphia, (October 1982).

- 1982 "Metastatistics and Public Controversy." At the meeting of the Society for Social Studies of Science, Philadelphia, (1982).
- 1980 "The Philosophical Relevance of Statistics." At the meeting of the Philosophy of Science Association, Toronto, Canada, (October, 1980).
- 1980 "The Foundations of Statistics as a Tool for Technology Studies." At the joint meeting of the Society for the Social Studies of Science and the Society for the History of Technology, Toronto, Canada, (October 1980).
- 1979 "Testing Statistical Testing." At the workshop in Testing Economic Theories at Virginia Polytechnic Institute, (March 1979).

(Selected) PAPERS PRESENTED AT COLLOQUIA AT VIRGINIA TECH SINCE 1991

- 2018 "Philosophy of Statistics & the Replication Crisis in Science." Philosophy Department Colloquium, Virginia Tech, (Oct 12, 2018).
- 2014 Philosophy Department Colloquium, "An Error in the Famous Argument to the Strong Likelihood Principle" (May 2, 2014)
- 2009 Philosophy Department Colloquium, "Double Trouble: Use-constructing Methods and Their Errors" (March 28, 2009).
- 2009 Workshop on "Philosophy of Statistics, Experiment and Modeling": "Induction as Severe Testing and The Role of Probability," (April 25, 2009).
- 2002 "Philosophy of Science and Philosophy of Statistics," at a colloquium in the Marketing Department, Virginia Tech, November, 2002.
- 2000 "Severity and Power", June 2000 Lecture Series on Statistical Testing, at the Department of Economics.
- 1999 "Errors, Statistics, and the Philosophy of Evidence" at a colloquium of the Department of Economics.
- 1996 "Error Statistics and Learning from Error" at a colloquium of the Department of Statistics.
- 1996 "Risk Assessment: Is There a Difference between Scientific and Ethical Rationality?" at the Center for the Study of Science in Society.
- 1995 "Duhem's Problem, the Bayesian Way, and Error Statistics," at a colloquium of the Department of Philosophy.
- 1991 "Risk Assessment Policy and Science and Technology Studies," at the Center for the Study of Science in Society.

- 1991 “Sociological and Metascientific Views of Risk Assessment,” at the Center for the Study of Science in Society.

### ***Blog***

- 2011- *Error Statistics Philosophy blog (errorstatistics.com)*, Blog on Philosophy of Statistics and Philosophy of Science <http://errorstatistics.com/>. (A professionally active blog on the foundations of statistics.)

### ***TV Show***

- 2000 Guest on a television show, “No Dogs or Philosophers Allowed”, a philosophy television show directed to college and high school students. The focus of the 4-person forum was, Methods of Science. NDOPA airs on public television stations and the Philosophy Channel, a web-based source for philosophical media. (November 29, 2000)

### **Graduate Seminars Taught at London School of Economics and Political Science:**

(Fall 2008) Led a Ph.D. Research Seminar in the department of Philosophy, Logic, and Scientific Method, (Ph500): *Topics in the Philosophy and History of Inductive/Statistical Inference and the Foundations of Statistical Science*.

(Summer & Fall 2012) Led a series of 6 Ph.D. research seminars in the department of Philosophy, Logic, and Scientific Method, (Ph500): *Contemporary Philosophy of Statistics*.

### **ACTIVITIES SPONSORED & CO-SPONSORED UNDER FUND FOR E.R.R.O.R.**

Organized and sponsored or co-sponsored Conferences, Workshops, and Speakers Series (since 2006) through the Mayo-Chatfield Fund for E.R.R.O.R. [Co-sponsors indicated below.]

### **Major Conferences:**

#### ***At Virginia Tech:***

June 1-5, 2006: Co-organized with Aris Spanos, *ERROR06* at Virginia Tech. *Special Invited Speakers:* P. Achinstein (Johns Hopkins), A. Chalmers (Flinders AU), Sir. D. Cox (Oxford), C. Glymour (Carnegie Mellon), H. Kyburg (Rochester), L. Laudan (UNAM), A. Musgrave (Otago), J. Worrall (LSE). There were *16 contributed papers* and *20 posters*. (Besides the US and Canada, presenters came from Australia, Germany, Israel, Italy, Mexico, New Zealand, Portugal, and the UK.) Co-sponsored with Dept. of Philosophy and NSF.

(<https://web.archive.org/web/20060807053427/http://www.error06.econ.vt.edu/>)

May 4-5, 2013: Co-organized with Ben Jantzen and Lydia Patton, *Ontology and Methodology*, at Virginia Tech for the Department of Philosophy, which the (Mayo-Chatfield) E.R.R.O.R. Fund partly sponsored. *Special Invited Speakers*: D. Danks (CMU), P. Godfrey-Smith (CUNY), K. Hoover (Duke), L. Ruetsche (U. Mich.), J. Woodward (Pittsburgh); plus 5 contributed papers. (<http://ontometh2013.com/>)

### **International:**

June 2009: Co-organized with Aris Spanos, and co-sponsored, *Multiplicity and Unification in Statistics and Probability* at the University of Kent (under a Kent-Virginia Tech International program). *Participants* (from LSE, Kent & VT) include: B. Autzen, N. Cartwright, D. Corfield, D. Fennell, G. Gaskell, C. Hennig, K. Hohl, D. Mayo, J. Mingers, F. Russo, A. Spanos, S. Stares, J. Williamson, J. Worrall. Co-sponsored with LSE, Kent, Virginia Tech. (<http://www.kent.ac.uk/secl/philosophy/jw/2009/musp/>)

June 21-2, 2010: Main organizer with Aris Spanos, *Statistical Science Meets Philosophy of Science: Where Do/Should They Meet in 2010 (and Beyond)?* at the London School of Economics. *Speakers and Panel Leaders*(\*): M. Albert (Justus Liebig Univ), J. Bernardo (Univ. of Valencia), N. Cartwright (LSE; UCSD), Sir D. Cox (Oxford), Sir D. Hendry (Oxford), C. Hennig\* (Univ College London), D. Mayo (Virginia Tech; LSE), S. Senn (Univ of Glasgow), K. Staley\* (St. Louis Univ), A. Spanos (Virginia Tech), J. Williamson (Univ of Kent), J. Worrall (LSE). Sponsored by E.R.R.O.R., Kent-Virginia Tech international program, and a Virginia Tech-LSE collaboration on *Evidence and Error*. ([http://www.phil.vt.edu/dmayo/conference\\_2010/index.htm](http://www.phil.vt.edu/dmayo/conference_2010/index.htm))

### **Workshops:**

June 27-29, 2005: Co-organized with Aris Spanos, *Workshop on the Philosophy and Methodology of Experimental Economics*, at Virginia Tech. *Participants*: included: S. Ball (VT), C. Bicchieri (U Penn), C. Eckel (VT), F. Guala (Exeter), R. Cubitt (Nottingham), K. Hoover (Duke), V. Smith (George Mason/U Alaska), D. Mayo (VT), A. Spanos (VT), C. Starmer (Nottingham), B. Sugden (U East Anglia), Jim Woodward (Pittsburgh). Co-sponsored with Economics.

June 28-29, 2008: Co-organized with Aris Spanos, and co-funded, *Workshop on Philosophy of Science & Evidence Relevant for Regulation & Policy*. *Participants*: N. Cartwright (LSE and UC San Diego), C. Cranor (UC Riverside), K. Elliott (USC), C. Glymour (CMU), K. Hoover (Duke), D. Mayo (VT), S. Mitchell (University of Pittsburgh), W. Parker (OSU), R. Scheines (CMU), K. Shrader-Frechette (Notre Dame), A. Spanos (VT), W. Wagner (University of Texas School of Law), J. Worrall (LSE). Co-sponsor: VT philosophy. ([http://www.phil.vt.edu/dmayo/personal\\_website/PhilEvRelReg/index.html](http://www.phil.vt.edu/dmayo/personal_website/PhilEvRelReg/index.html))

November 14, 2010: Co-organized with Nancy Cartwright, *Workshop on Methodological Issues of Developmental Economics*, at the London School of Economics.

### Seminar Mini-Conferences:

April 2009: Co-organized with Aris Spanos (Economics), a seminar conference for Phil 6334: *Philosophy of Experimental Inference and Modeling*. (Guest speaker: Clark Glymour, CMU). Also hosted at Virginia Tech for one month, two participants from my LSE seminar (B. Autzen, K. Hohl).

April 29, 2011: Co-organized with Alan Chalmers, a seminar conference for Phil 6334: *Experimental Knowledge and the Deep Structure of the World*. (Speakers: P. Achinstein (Yeshiva) , Z. Biener (U. Cincinnati), A. Chalmers (Sydney) , V. Di Fate (Johns Hopkins), L. Patton (VT), A. Spanos (VT), K. Staley (Saint Louis Univ.), J. Worrall (LSE); the students in Phil 6334 & 2 Students from UVA.  
[http://www.phil.vt.edu/dmayo/deep\\_structure/](http://www.phil.vt.edu/dmayo/deep_structure/))

### Lecture Series ran:

#### ***Distinguished Lecture Series in Economics and Philosophy (2005-2010):***

November 16, 2005: Guest speaker, *Professor James O. Berger*, Duke University, “Objective Bayesian analysis: its uses in practice and its role in the unification of statistics”.

November 13, 2009: Guest speaker, *Professor Jeffrey Bub*, Distinguished University Professor, University of Maryland, “Quantum Games: Einstein & Bohr Meet Alice & Bob.”

February 5, 2010: Co-sponsored with the Department of Philosophy, guest speaker, Professor William Lycan, University of North Carolina, Chapel Hill, (arrangers: visiting faculty, Mark Bauer, Ted Parent), “Resuscitating Cartesian Dualism.”

April 23, 2010: Co-sponsored with the Department of Philosophy, guest speaker, Professor Patricia Kitcher, Columbia University, (arranger: Lydia Patton) “Kant on Rational Cognition and Moral Agency.”

March 18, 2010: Organized and co-sponsored with the Departments of Philosophy and Statistics, guest speaker Professor Cosmo Shalizi, Carnegie-Mellon University, “Dynamics of Bayesian updating with dependent data & misspecified models.”

#### ***The I. J. Good Lecture & The Marjorie Grene Lecture, Virginia Tech Distinguished Adjunct Lecture Series in Philosophy:***

September 12, 2010: The I. J. Good Lecture. Guest speaker: Professor Larry Wasserman, Carnegie-Mellon University, “The Foundations of Statistics: A Modern Perspective.”



September 9, 2011: The Marjorie Grene Lecture. Guest speaker: Professor David Depew, University of Iowa, “The Creativity of Natural Selection and the Boundaries of the Modern Synthesis.”

(Selected) PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

**(Selected) Offices, Committees & Editorial Work:**

Governing Board of the Philosophy of Science Association (1986-1989)

Philosophy of Science Association 1990 Program Committee

Editorial Board of *Philosophy of Science* 1985-99; 2005-2009

Nominations Committee, Philosophy of Science Association 1992

Chair, Design committee, Philosophy of Science Association 1995-7

Vice President of the Division of Logic, Methodology, and Philosophy of Science of the International Union of History and Philosophy of Science: 2000-2003.

Lakatos Prize Award Committee: 1999-2002, 2003-present

Ethics Review (U.S. member), the International Congress of Scientific Unions: 2003-2006

*Frequentist Analysis Group for The Reproducibility project.* This is an international effort to systematically study published work in psychology and other fields to improve reproducibility and statistical fraud detection.

Member of *American Statistical Association (ASA) advisory working group on P-value principles.*

I have been associate editor for Risk: Health, Safety & Environment

Associate Editor: Journal of Economic Methodology

I have most often reviewed manuscripts, book proposals, and grants for the following journals, presses and agencies: Philosophy of Science, The British Journal for the Philosophy of Science, Synthese, American Statistician, Entropy, Foundations of Science, Science, Technology and Human Values, Erkenntnis; NSF Scholars Awards, NEH; book manuscripts from Oxford, Cambridge

Program Committees: Philosophy of Scientific Experiment (PSX) conferences: 2009-present; Formal Epistemology Workshop (FEW) 2017.

NEH panel member for research awards in Humanities: Summer 2011.

**Edited Special Conference Related Journal Issues**

“Error and Methodology in Practice,” special issue of *Synthese* 163(3), (2008) from the E.R.R.O.R. 06 conference. Co-edited with Kent Staley and Jean A. Miller.

“Statistical Science and Philosophy of Science: Where Do (Should) They Meet in 2011 (and Beyond?),” special issue of *Rationality, Markets and Morals: Studies at the Intersection of Philosophy and Economics (RMM)* Vol. 2 (2011) and Vol. 3(2012) from the conference of the same name. Co-edited with Aris Spanos and Kent Staley.

“Ontology and Methodology” *Synthese* 192(11), (2015) from the Ontology and Methodology 2013 conference. Co-edited with Lydia Patton and Ben Jantzen.

**Memberships:**

American Philosophical Association, Philosophy of Science Association, Sigma Xi, British Society for Philosophy of Science, American Statistical Association, American Association for the Advancement of Science