

Lauren N. Ross

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**Areas of
Specialty** Causation and explanation. Philosophy of biology, neuroscience, and medicine.

**Areas of
Competence** Philosophy of cognitive science. Philosophy of social science. General philosophy of science.

Academic Appointments

University of California, Irvine

Dean's Professor of Logic and Philosophy of Science; 2025-Present.
Chancellor's Fellow 2025-2028.
Associate Professor of Logic and Philosophy of Science; 2021-2025.
Member, Center for Neuropolitics, 2021-Present.
Campuswide Honors Faculty, 2019-Present.
Member, Center for Complex Biological Systems (CCBS), 2018-Present.
Assistant Professor of Logic and Philosophy of Science; 2017-2021.

University of Calgary

Eyes High Postdoctoral Fellow, Philosophy Department; 2016-2017.

Ludwig Maximilian University of Munich

Visiting Appointment, Humboldt Experienced Researcher Fellowship,
Munich Center for Mathematical Philosophy; 2021-2023.

Australian National University

Visiting Appointment, Myint Zan ECR Fellowship, Philosophy Department.

Education

Ph.D. History and Philosophy of Science, *University of Pittsburgh*; 2016.
Dissertation: "Explanation in Contexts of Causal Complexity."
(Advisors: James F. Woodward, Kenneth F. Schaffner).

M.A. Bioethics and Health Law, *University of Pittsburgh*; 2016.
Thesis: "Stem Cell Development and the Pathway Model."

M.D. School of Medicine, *University of California, Irvine*; 2011.
Distinction in Arts and Humanities.

B.S. Nutrition; Biology minor, *California Polytechnic State University, San Luis Obispo*; 2007. *magna cum laude*.

- Grants, Other Awards**
- John Templeton Foundation (JTF) Grant Award: “Explaining Why: A Multidisciplinary Approach to Token Causality,” with Samantha Kleinberg, David Lagnado, and Phyllis Illari. \$831,733; (2025-28).
- John Templeton Foundation (JTF) Grant Award: “Causal Selection, Structure, and Explanation in Biology,” \$269,528; (2023-26).
- NSF Career Award; # 1945647 “Causal Explanation in Biology and the Diversity of Causal Concepts,” NSF Science, Technology, and Society Research Grant, \$403,419; (2020-25).
- Alexander von Humboldt Research Fellowship for Experienced Researchers; Munich Center for Mathematical Philosophy (MCMP); \$29,750. (2021-24)
- Carl Friedrich von Siemens Research Fellowship; \$2,550 (2021-24).
- Social Science Seed grant; UCI \$4,416, (2020-2021).
- Myint Zan ECR Fellowship Australian National University (ANU); \$4,900 (2022).
- Faculty Summer Instructional Development Award; UCI \$1,700 (2020).
- UC Irvine Representative Athena/Wisdom NIH, NCI Grant (2018-2023).
- Research Grant; Council Research, Computing, and Libraries; UCI (2017-24)
- Co-investigator John Templeton Grant “From Biological Practice to Scientific Metaphysics.” (#50191) Waters, Weber, Love & Wimsatt. (2016-18).
- Eyes High Postdoctoral Fellowship, University of Calgary (2016-17).
- Graduate Student Commencement Address University of Pittsburgh (2016).
- Research Travel Grant American Society of Microbiology (2015).
- NSF Travel Grant for History of Science Society (2014).
- American Society of Microbiology Conference Research Grant (2013).
- Awards, Other Honors**
- Plenary Speaker, “New Theoretical Horizons in Cognitive Science,” Annual Meeting of the Cognitive Science Society. 2025
- Keynote and Invited Dr. Carol A. Keene Visiting Scholar, Southern Illinois University Edwardsville (SIUE), 2024
- Dean’s Award for Outstanding Undergraduate Teaching, UC Irvine, 2023.
- Giere Distinguished Lecture, “Distinctions among causation,” Department of History & Philosophy of Science & Medicine, Indiana University, Bloomington. 2022.
- Editor’s Choice Award; Honorable Mention Popper Prize *The British Journal for the Philosophy of Science*; “Causal Concepts in Biology: How Pathways Differ from Mechanisms and Why It Matters” (2021).
- Recognition for “Outstanding teaching” at UCI: Courses ranked in top 15% all courses School of Social Sciences. “Philosophy of Medicine” (2017, 2018, 2019, 2021W, 2021F, 2022); “What is Disease?” (2020, 2021, 2023, 2024), and “Making Modern Science” (2019, 2020).
- Publications**
- A27. “Causal Explanation in Biology: A Control Element Account,” Nehm, R. H., Kampourakis, K. *Explanation in Biology Education: Theory and Practice*. Contri-

butions from Biology Education Research. Springer. (Forthcoming).

A26. “Conspiracy Thinking in American Politics” with Steven Gong, Davin Phoenix, George E. Marcus, Laiyla Santillan, Cailin O’Connor, Peter Ditto, Karen M. Douglas, Hemant Kakkar, David Kaye, Neil Levy, and Mark Fisher. *Politics and the Life Sciences*. 2026;45(1):28-45 (2026).

A25. “The Possibility Space Concept in Neuroscience: Possibilities, Constraints, and Explanation,” with Viktor Jirsa and Randy McIntosh. *European Journal of Neuroscience* (2025).

A24. “Is Okham’s Razor Losing Its Edge? New Perspectives on the Principle of Model Parsimony,” with Marina Dubova, Suyog Chandramouli, Gerd Gigerenzer, Peter Grünwald, William Holmes, Tania Lombrozo, Marco Marelli, Sebastian Musslick, Bruno Nicenboim, Lauren N. Ross, Richard Shiffrin, Martha While, Paul-Christian Bürkner, EJ Wagenmakers, and Sabina J. Sloman. *The Proceedings of the National Academy of Sciences* (PNAS) Special Issue on the Practices of Science.

A23. “Proximal, Distal, and the Language of Causation: Locating the Causes of Disease,” with Kenneth S. Kendler. In *Causal Concepts In Psychopathology: Multidisciplinary Perspectives*. Editors: Kenneth S. Kendler, Josef Parnas and Peter Zachar. *Cambridge University Press* (forthcoming).

A22. “Causation in Neuroscience: Keeping Mechanism Meaningful,” with Dani S. Bassett. *Nature Reviews Neuroscience* (2024).

A21. “The Explanatory Nature of Constraints: Law-Based, Mathematical, and Causal.” *Synthese* (2023).

A20. “Causal Constraints in the Life and Social Sciences.” *Philosophy of Science* (2023).

A19. “What Is Social Structural Explanation? A Causal Account.” *Noûs* (2023).

A18. “Causal Approaches to Explanation,” with James F. Woodward. *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta ed, (2023).

A17. “Cascade Versus Mechanism: The Diversity of Causal Structure in Science.” *The British Journal for the Philosophy of Science* (forthcoming).

A16. “A Call for Clarity About Causality in Neuroscience,” with David L. Barack, Earl K. Miller, Christopher I. Moore, Adam M. Packer, Luiz Pessoa, and Nicole

- C. Rust. *Trends in Neurosciences* (2022).
- A15. “Irreversible (One-hit) and Reversible (Sustaining) Causation,” with James F. Woodward. *Philosophy of Science* (2022).
- A14. “Causes With Material Continuity.” *Biology & Philosophy* (2021).
- A13. “Scientific Explanation,” with James F. Woodward. *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), <https://plato.stanford.edu/entries/scientific-explanation/> (2021).
- A12. “Tracers in Neuroscience: Causation, Constraints, and Connectivity.” *Synthese* (2021).
- A11. “Causal Concepts in Biology: How Pathways Differ From Mechanisms and Why It Matters.” *The British Journal for the Philosophy of Science* **72**(1)131-158 (2021). Editor’s Choice Award.
- A10. “Causal Explanation and the Periodic Table.” *Synthese* **198**, 79-103 (2021).
- A9. “Distinguishing Topological and Causal Explanation.” *Synthese* (2020).
- A8. “Multiple Realizability from a Causal Perspective.” *Philosophy of Science* **87**(4), 640-662 (2020).
- A7. “Explanation in Contexts of Causal Complexity: Lessons from Psychiatric Genetics.” *Minnesota Studies in Philosophy of Science* volume on “From Biological Practice to Scientific Metaphysics” (forthcoming).
- A6. “Causal Control: A Rationale For Causal Selection.” *Minnesota Studies in Philosophy of Science* volume on “Causation in Biology” (forthcoming).
- A5. “The Doctrine of Specific Etiology.” *Biology & Philosophy* **33**: 37; (2018).
- A4. “Causal Selection and the Pathway Concept.” *Philosophy of Science*. **85**(4), 551-572 (2018).
- A3. “Koch’s Postulates: An Interventionist Perspective,” with James F. Woodward. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* **59**, 35-46 (2016).
- A2. “Dynamical Models and Explanation in Neuroscience.” *Philosophy of Science* **82**(1), 32-54 (2015).

- A1. “Kinetics and Regioselectivity of Ring Opening of 1-Bicyclo[3.1.0]hexanylmethyl Radical,” with E.J. Kantorowski, D.D. Le, C.J. Hunt, K.Q. Barry-Holson, and J.P. Lee. *Journal of Organic Chemistry* **73**(4), 1593-6 (2008).
- Books** B1. *Explanation in Biology*, Cambridge University Press; Elements Series (2025).
- Commentary,** C2. “Reply to ‘Causal prominence for neuroscience’ ” with Dani S. Bassett *Nature*
Correspondence *Reviews Neuroscience* (2024). <https://doi.org/10.1038/s41583-024-00839-5>
Peer-reviewed
- C1. “Building Causal Knowledge in Behavior Genetics.” with James F. Woodward and Kenneth S. Kendler *Behavioral and Brain Sciences* (2023).
- Public** P1. “What are social structural explanations?” *The London School of Economics*
Philosophy of *and Political Science (LSE) Impact Blog* (2023).
Science
- Book Review** BR1. Review of James Woodward’s “Causation with a human face” *Analytic Philosophy*, Editor David Sosa (forthcoming).
- Works** W4. “Social Structural Reasoning: Current Work and Open Questions” with
In-Progress David Menendez, Nadia Chernyak, and Caren Walker
- W3. “Causal Explanation From a Conceptual Engineering Perspective: Non-Reductive, Piecemeal, and Pluralist” with Jaehyun Lee
- W2. “The Explanatory Role of Networks in Neurobiology” with James Woodward.
- W1. “Circuits and Circuit Manipulations in Neuroscience” with James Woodward.
- Books Under** BC1. *Causation and Explanation in the Life Sciences*, Oxford University Press
Contract (under contract, in preparation).
- Invited Talks** T106. TBD. Keynote. Models of Consciousness. Copenhagen, Denmark. October 2026.
- T105. TBD. Keynote. Society for Multidisciplinary and Fundamental Research. Spain. July 2026.
- T104. TBD. Keynote. “The Epistemology of Medicine,” Ludwig-Maximilians-Universität München. Munich Center for Mathematical Philosophy. Munich, Germany June 2026.

- T103. Explanation in the Sciences: Capturing Standards and Success. Beilstein Dialogues Symposium 2026; “Representation and Reality - Rethinking Scientific Models,” Rudesheim, Germany
- T102. Causation in Neuroscience: Explanation, Mechanism, and Control. Translational Neuroscience Network (TN2). “Causality in Neuroscience,” Amsterdam Neuroscience. University of Amsterdam. May 2026.
- T101. Causation and Explanation in Chemistry: Spatial, Geometrical, and Structural Considerations, with Lauren Wigod. Symposium on Philosophy of Chemistry, “Identity, Persistence and Change in Chemistry,” Society for the Metaphysics of Science. Toronto. May 2026.
- T100. TBD. Keynote. Rotman Graduate Student Conference, Western University, London, Ontario, CA. May 2026.
- T99. Explanation in Neuroscience: Causal, Mechanistic, and Mathematical. “Brain, Body, Behavior: A Foundation for Neuroscience Beyond Computation.” Lorenz Center, University of Leiden, Netherlands. March 2026.
- T98. Scientific Explanation: Causal and Non-causal. Dynamic Computation and Explanation at Stanford University, Stanford, CA. March, 2026.
- T97. Explanation in Cognitive Neuroscience: Pluralism, Principles, and Precision. Relating Explanatory Paradigms in Cognitive Neuroscience – Pluralism, Integration, and Elimination. “Mechanistic and Representational Explanation in Cognitive Neuroscience” (MeReX). Berlin, Germany. February 2026.
- T96. Causal Language in Science. Language Sciences Department Talk. University of California, Irvine. February, 2026.
- T95. Keeping Mechanism Meaningful. Mechanisms Module. Icahn School of Medicine at Mount Sinai in New York City. February, 2026.
- T94. Explanation in Biology: Principles and Pragmatics. Levin Research Group. October, 2025.
- T93. Causation in Neuroscience: Efforts Towards Conceptual Clarity. “Same Words, Different Worlds: Conceptual Consistency in Systems Neuroscience”. Bernstein Network Computational Neuroscience. Frankfurt am Main, Germany. September 2025.
- T92. Cognitive Science and Its Philosophy: Looking to the Future. Plenary Speaker, “New Theoretical Horizons in Cognitive Science,” Annual Meeting of the Cognitive Science Society. San Francisco. July-August 2025.
- T91. Emergence in the Life Sciences. “Embracing Complexity: Principled and Practical Approaches to Emergence” Institute for Cross-Disciplinary Physics and Complex Systems (IFISC), Palma de Mallorca, Spain, June 2025.
- T90. Bridging Philosophy and Neuroscience to Support Clarity About Causation. Center for the Neurobiology of Learning and Memory, Thomas Henry Curtis

- Colloquium Series. University of California, Irvine. April 2025.
- T89. Bridging Philosophy and Neuroscience to Support Clarity About Causation. Applied Philosophy in Neuroscience Group. Yale University. New Haven, Connecticut. April 2025.
- T88. The Explanatory Nature of Constraints. Colloquium Series Department Talk. Washington University in St. Louis. April 2025.
- T87. The Nature of Cause and Explanation. Workshop on “Quantifying the Ghost in the Machine”, BEYOND: Center for Fundamental Concepts in Science, Arizona State University, Tempe AZ. April 2025.
- T86. The Explanatory Nature of Constraints. University of Minnesota, Philosophy Department. March 2025.
- T85. Causal complexity and causal distinctions. Workshop on Causality and Complexity. University of Cologne, Cologne, Germany. March 2025.
- T84. Organization in Neuroscience Explanation: Constraints, Causation, and Structure. Keynote Lecture. 8th Whistler Scientific Workshop. Brain Functional Organization, Connectivity, and Behavior. February 2025.
- T83. Types of Causation in the Life Sciences. University of Wisconsin Madison, Department of Philosophy February 2025.
- T82. Types of Causation in the Life Sciences. University of Pittsburgh, History and Philosophy of Science February 2025.
- T81. Types of Causation in the Life Sciences. Sage School of Philosophy, Cornell University January 2025.
- T80. Types of Causation in the Life Sciences. Notre Dame, Philosophy Department January 2025.
- T79. The Circuit Concept in Neuroscience: Causation, Constraints, and Computation. Theorizing and Modeling in Neuroscience. Chapman University, Orange, CA. January 2025.
- T78. Social Structures: What Do They Cause and Explain? Public Lecture. Dr. Carol A. Keene Visiting Scholar, Southern Illinois University Edwardsville (SIUE). November 2024.
- T77. Types of Causation in the Life Sciences. Keynote Lecture. Dr. Carol A. Keene Visiting Scholar, Southern Illinois University Edwardsville (SIUE). November 2024.
- T76. Social Structures: What Do They Cause and Explain? Public Lecture. Philosophy Today Series. University of Alabama, October 2024.
- T75. Varieties of Causation in the Life Sciences. Keynote Lecture. Philosophy Today Series. University of Alabama, October 2024.
- T74. Types of Causation in the Life Sciences. Keynote Lecture. University of Minnesota, Philosophy Department. October 2024.

- T73. Explanation and Explanatory Models in Neuroscience. NeuroAI Workshop; Validating models and success in NeuroAI. Research Council of Norway. Tromsø, Norway, September 2024.
- T72. Types of Causation in the Life Sciences. University of Oslo. Oslo, Norway, September 2024.
- T71. Causal Circuits in the Brain. Workshop on “Defining Brain Functions,” The Foundations Institute at the University of California, Santa Barbara May 7-8, 2024.
- T70. “Connecting Scientific Explanation to Explainability: Prediction, Trust, and Bias.” Keynote Lecture. ML, Explain yourself!: Perspectives from philosophy and computer science. Normative Philosophy of Science Lab at Utrecht University and Eindhoven University of Technology. Utrecht, Netherlands. April 2024.
- T69. “Causation in the Life Sciences.” Department of Philosophy, University of Pennsylvania. Pennsylvania, PA. April, 2024.
- T68. “Mathematical explanation in the life sciences: Importance and limitations.” American Philosophical Association (APA) Central, New Orleans, LA, February 2024.
- T67. “Causal Pathways in the Life Sciences.” American Philosophical Association (APA) Central, New Orleans, LA, February 2024.
- T66. “Mechanism and Causation in Neuroscience.” Neuroscience & Philosophy Salon, February 2024.
- T65. “Types of causation.” Causality in minds and machines: Probing the mathematical and computational foundations. Society for Mathematical Psychology Workshop on Causality in Psychology, Philosophy & AI. San Francisco, California. November 2023.
- T64. “The Nature of Explanation: An Interdisciplinary Perspective”. Institute for Advanced Studies, University of Helsinki. Helsinki, Finland. November 2023.
- T63. “Types of causation in neuroscience.” Institute for Neuroscience and Neurotechnology, Simon Fraser University, Burnaby, BC. September 2023.
- T62. “Causal varieties in science.” Department of Philosophy; Leibniz University, Hannover, Germany. July 2023.
- T61. “Causal varieties in the life sciences.” PhilInBioMed Summer School, organized by Thomas Pradeau. University of Bordeaux. Bordeaux, France. June 2023.
- T60. “Explanation in neuroscience: Mechanisms, cascades, and pathways.” The Brain Institute. Rinker Campus, Chapman University. June 2023.

- T59. “Explanation in neuroscience: Mechanisms, cascades, and pathways.” Summer Seminars in Neuroscience and Philosophy (SSNAP). Organized by Felipe De Brigard and Walter Sinnott-Armstrong. Duke University. Durham, NC. June 2023.
- T58. “Causal varieties as heuristics.” Heuristics and Causality in the Sciences (HaCitS). David Lagnado and Samantha Kleinberg. London, UK. May 2023.
- T57. “Proximal, distal, and the language of causation: Locating the causes of health and disease.” 6th Copenhagen Psychiatry/Philosophy meeting “Causality in Psychiatric Research and Practice” Organized Kenneth Kendler, Peter Zachar, and Joseph Parnas. Copenhagen, DK. May 2023.
- T56. “Causal varieties in science.” Philosophy Department, University of California, San Diego, CA. April 2023.
- T55. “Causal Explanation in Neuroscience: Mechanisms and Pathways.” Keynote address. Human Brain Project Summit 2023, “Human Brain Project Summit 2023: Achievements and future of digital brain research,” Marseille, France. March 2023.
- T54. “Causation in Neuroscience: Its many shapes and sizes.” Mind Center for Outreach, Research, and Education (MindCORE) University of Pennsylvania. March 2023.
- T53. “Causal Varieties: In Science, Law, and Everyday Life.” Harvard Law and Philosophy Society, Harvard Law School, Boston, MA. March 2023.
- T52. “Distinctions within Causation: Causal Diversity in the Life Sciences.” Philosophy Department, University of Colorado. February 2023.
- T51. “Interventionism and Its (Causal) Influence”. James F. Woodward Workshop. Pittsburgh, PA. November 2022.
- T50. “Causal diversity: Capturing distinctions among causation” Keynote speaker, Causation and Complexity Workshop; University of Salzburg; Salzburg, Austria. September 2022.
- T49. “Distinctions among causation” Giere Distinguished Lecture, Department of History and Philosophy of Science and Medicine Indiana University, Bloomington. September 2022.
- T48. “Causation and explanation in science” with James F. Woodward, Summer Diversity Program Seminar, Logic and Philosophy of Science Department August. 2022.
- T47. “Cascade as a causal concept.” Ludwig-Maximilians-Universität München. Munich Center for Mathematical Philosophy. Munich, Germany. July 2022.
- T46. “Cascade versus mechanism: The diversity of causal structure in science.” “New Perspectives on Causation in the Life Sciences,” University of Kent; Canterbury, UK. June 2022.

- T45. “Distinctions among causation in neuroscience and biology.” Precision Convergence Webinar Series, McGill, Carnegie Mellon University, and the University of Pittsburgh. April 2022.
- T44. “Emergence, explanation, and causation” A Workshop on Emergence. University of Sussex. June 2022.
- T43. “Comments on Karl Friston’s Self Evidencing for Individual and Collective Agency.” Precision Convergence Webinar Series, McGill, Carnegie Mellon University, and the University of Pittsburgh. April 2022.
- T42. “The diversity of causal systems in neuroscience: Distinguishing mechanisms from pathways.” Behavioral Medicine Science Seminar Series, Columbia University, NY. April 2022.
- T41. “Social structure and causal explanation” University of North Carolina (UNC) at Greensboro; Greensboro, NC. April 2022.
- T40. “What is social structural explanation? A causal account.” American Philosophical Association (APA) Pacific; Vancouver, BC. April 2022.
- T39. “What is social structural explanation? A causal account.” Department of Philosophy; University of Southern California, Los Angeles, CA. December 2021.
- T38. “Biology and its Philosophy.” Theory of Living Matter (TLM) group, University of Cambridge, Cambridge, UK. February 2022.
- T37. “Disease causation and classification: Comments on Fuller.” Workshop on Jonathan Fuller’s *New modern medicine* book, Center for Philosophy of Science; University of Pittsburgh, PA. December 2021.
- T36. “Cascade as a causal concept: The diversity of causal structure in science.” Department of Philosophy; Duke; Durham, NC. December 2021.
- T35. “Philosophy of neuroscience: Causation, levels, and emergence.” Neuroscience & Philosophy Salon. With Danielle Bassett, Randy McIntosh, and Michael Silberstein. Organized by Luiz Pessoa. June 2021.
- T34. “Distinctions among causation.” SET Foundations; Building Foundations in Science-Engaged Theology: Insights from Philosophy of Science. May 2021.
- T33. “Mechanism (and mechanistic explanation).” SET Foundations; Building Foundations in Science-Engaged Theology: Insights from Philosophy of Science. May 2021.
- T32. “Interventionist account: Causation Explanation. SET Foundations: Building Foundations in Science-Engaged Theology: Insights from Philosophy of Science. May 2021.
- T31. “Cascade, Mechanism, and Distinctions Among Causation.” Philosophy and the Life Sciences Meeting. Organized by John Bickle and Antonella Tramacere, Mississippi State University. April 2021.

- T30. “Causation in Neuroscience: Pathways, Processes, and Circuits.” American Philosophical Association (APA) Pacific. April 2021.
- T29. “Cascade as a causal concept: The diversity of causal structure in science.” Department of Philosophy; University of California, Davis. April 2021.
- T28. “Tracers in Neuroscience: Causation, Constraints, and Connectivity.” Dutch Distinguished Lecture Series in Philosophy and Neuroscience. March 2021.
- T27. “Distinctions among causation.” Philosophy Club, UC Irvine. March 2021.
- T26. “Tracers in Neuroscience: Causation, Constraints, and Connectivity.” Neural Mechanisms Online, Webinar Series. February 2021.
- T25. “The Explanatory Nature of Constraints: Law-based, Mathematical, and Causal.” FraMEPhys (A Framework for Metaphysical Explanation in Physics), Philosophy Department, University of Birmingham. January 2021.
- T24. “Tracers in Neuroscience: Causation, Constraints, and Connectivity.” School of Philosophy, Australian National University (ANU). November 2020.
- T23. TBD Santa Fe Institute (SFI), Santa Fe, NM; –reschedule Covid-19.
- T22. “Distinctions Among Causation: Causes with Material Continuity.” “Mereology of Potentiality” Seminar, Corpus Christi College; Oxford, England November 2020.
- T21. “Tracers in Neuroscience: Causation, Constraints, and Connectivity.” History, Philosophy, and Science of Science (HPASS) Reading Group; University of California Los Angeles (UCLA); Los Angeles, CA; October 2020.
- T20. “Distinctions Among Causation: Causes with Material Continuity.” University of Cologne Workshop on “Causal distinctions: specificity and beyond,” Cologne, Germany; October 2020.
- T19. “Tracers in Neuroscience: Causation, Constraints, and Connectivity.” Philosophy Department, Tufts University Medford, MA; September 2020.
- T18. “The Distinctiveness of Disease Explanation.” Neurophilosophy Forum and GSU Neuroscience Institute; Georgia State University; Atlanta, GA; March 2020.
- T17. “The Distinctiveness of Disease Explanation.” History and Philosophy of Science and Medicine Colloquium. Washington University; St. Louis, MO; February 2020.
- T16. “Distinguishing Topological and Causal Explanation.” Keynote speaker, Scientific Explanations, Competing and Conjunctive. University of Utah; Salt Lake City, Utah; June 2019.
- T15. “Causation and Disease.” Pacific American Philosophical Association. Vancouver, Canada. April 2019.
- T14. “Causal Reasoning in Science.” Center for Complex Biological Systems, UC Irvine Retreat, Universal City, CA. March 2019.

- T13. “Causes with Material Continuity.” Ludwig-Maximilians-Universität München. Munich Center for Mathematical Philosophy. Munich, Germany. March 2019.
- T12. “Explanation in Contexts of Causal Complexity: Lessons from Psychiatric Genetics.” California Institute of Technology. Pasadena, CA. October 2018.
- T11. “An Analysis of Causal Complexity: Lessons from Psychiatric Genetics” Summer institute on the topic of “From Biological Practice to Scientific Metaphysics.” Taipei, Taiwan. July 2018.
- T10. “The Doctrine of Specific Etiology: The Influence of Germ Theory on Modern Medicine” Medical Humanities Colloquium. University of California, Irvine. Irvine, California. January 2018.
- T9. “Causal Concepts in Biology: How Pathways Differ from Mechanisms and Why it Matters.” Le Centre national de la recherche scientifique (CNRS), University of Bordeaux. Bordeaux, France. January 2018.
- T8. “The Doctrine of Specific Etiology.” Le Centre national de la recherche scientifique (CNRS), University of Bordeaux. Bordeaux, France. January 2018.
- T7. “Causal Selection in the Biological Sciences.” Department of Philosophy. University of Calgary. Alberta, Canada. October 2016.
- T6. Commencement Ceremony Address. University of Pittsburgh. Pittsburgh, PA. May 2016.
- T5. “Causal Control: A Rationale For Causal Selection.” Department of Philosophy Colloquium Series. Stanford University. Palo Alto, CA. February 2016.
- T4. “Causal Complexity, Causal Selection, and Disease Explanation.” Logic and Philosophy of Science Colloquium Series. University of California, Irvine. Irvine, CA. February 2016.
- T3. “Causal Complexity, Causal Selection, and Disease Explanation.” Department of Philosophy Colloquium Series. University of Utah. Salt Lake City, UT. January 2016.
- T2. “Dynamical Models: Mathematical Explanation in Neuroscience and Medicine.” International Advanced Seminar in the Philosophy of Medicine (IASPM). Paris, France. June 2013.
- T1. “Robert Koch’s Criteria for Disease Causation: Their Origin and Content.” American Society of Microbiology (ASM). Denver, CO. May 2013.

**Refereed
Conference
Presentations**

- R20. “The Explanatory Role of Networks in Neurobiology,” with James Woodward. Philosophy of Science Association (PSA). New Orleans, LA. November

- 2024.
- R19. “Circuits and Circuit Manipulations in Neuroscience,” with James Woodward. Philosophy of Science Association (PSA). New Orleans, LA. November 2024.
- R18. “When causes constrain (and explain).” Philosophy of Science Association (PSA). Pittsburgh, PA. November 2022.
- R17. “Causality in neuroscience: A taxonomy of causal distinctions.” Philosophy and Neuroscience at the Gulf IV. Organized by John Bickle with the Alabama Philosophical Society (APS). Pensacola Beach, Florida. September 2021. – cancelled Covid
- R16. “Irreversible and reversible causation” with James F. Woodward. Philosophy of Science Association (PSA), Baltimore, Maryland; November 2021.
- R15. “Tracer methodology and mark transmission: Lessons from neuroscience.” Society for Philosophy of Science (SPSP); Michigan State University, East Lansing, MI; –reschedule Covid-19.
- R14. “Tracers in neuroscience: Causation, constraints, and connectivity.” NeuroTech Conference: An Interdisciplinary Early Career Workshop on Tools and Technology in Neuroscience. University of Pittsburgh. Pittsburgh, Pennsylvania. January 2020.
- R13. “Tracer and Tagging Experiments in Neuroscience.” Tool development in neuroscience: A science-in-practice workshop. Organized by John Bickle and Carl Craver with the Alabama Philosophical Society (APS). Pensacola Beach, Florida. September 2019.
- R12. “Distinguishing Causal Structures: Mechanisms, Pathways, and Cascades.” European Philosophy of Science Association (EPSA). Geneva, Switzerland. September 2019.
- R11. “Explanation in Contexts of Causal Complexity: Lessons from Psychiatric Genetics.” Philosophy of Science Association (PSA). Seattle, WA. November 2018.
- R10. “Causal Concepts in Biology: Distinguishing Pathways From Mechanisms,” Philosophy of Biology at the Mountains (POBAM) Workshop. University of Utah. Salt Lake City, Utah. May 2018.
- R9. “The Doctrine of Specific Etiology,” Conference on “Issues in Medical Epistemology.” University of Cologne. Cologne, Germany. December 2017.
- R8. “Causal Explanation in Biology: More Than Mechanisms.” Philosophy of Science Association (PSA). Poster Session. Atlanta, GA. November 2016.
- R7. “Causal Heterogeneity and the Final Common Pathway Model.” Canadian Philosophical Association (CPA). University of Calgary. Calgary, Canada. June 2016.

- R6. “Causal Explanations in Genetics and the Pathway Concept.” International Society for the History, Philosophy, and Social Studies of Biology (ISHPSSB). Université Du Québec à Montréal (UQAM). Montréal, Canada. July 2015.
- R5. “Neuropsychiatric Genetics: Advances in Explaining and Understanding Neuropsychiatric Disorders,” Early Career Scholars Conference in Philosophy of Psychiatry: Overcoming Mind-Brain Dualism in 21st Century Medicine. Pittsburgh, PA. November 2014.
- R4. “Koch’s Criteria of Disease Causation.” History of Science Society. Chicago, Illinois. November 2014.
- R3. “Dynamical Models and Explanation in Neuroscience.” Experimentation in Neuroscience. Pittsburgh, PA. November 2013. (Poster session.)
- R2. “Explanations and Explanatory Models in Biomedicine.” Fifth International Philosophy of Medicine Roundtable. New York, NY. November 2013.
- R1. “Value, Dysmenorrhea, and the Definition of Disease.” Fourth International Philosophy of Medicine Roundtable. San Sebastian, Spain. November 2011.

**Interviews and
Public Pieces**

- I8. Interview with Megan Peters & Lauren Ross on “Why Science and Philosophy Need Each Other,” Mind-Body Solution Podcast. October 2025. <https://www.youtube.com/watch?v=XXUqQ07SSRo>
- I7. Mike Levin Interview: March 2025. https://www.youtube.com/watch?v=PoY-_G4v-rc
- I6. The Dissenter Interview: “Causation and Explanation in Science.” February 2025. <https://www.youtube.com/watch?v=sbY40h-1gKY>
- I5. UCI Experts On: “Causation In Science”. UCI School of Social Sciences, April 2024. <https://www.youtube.com/watch?v=nNgceXGy4Bo>
- I4. Nursing Conversations with Martin Lipscomb. “What is Social Structural Explanation? A Causal Account?”, April 2023. <https://www.youtube.com/watch?v=ubyRT6GTEsI>
- I3. Institute for Neuroscience and Neurotechnology. Randy McIntosh, “In Conversation with Dr. Lauren Ross”, October 2023. <https://www.youtube.com/watch?v=KMnseQftrtIU>
- I2. Brain Inspired, Paul Middlebrooks, “Causal and Non-Causal Explanation” September 2022. <https://www.youtube.com/watch?v=KKgL91N7njM>
- I1. Podcast Interview: Extrapolator, Geoff Allen, “Causal Concepts and Analogies” May 2022. <https://extrapolator.podbean.com>

Teaching

University of California, Irvine, LPS

Winter 2024 · **Honors: Critical Issues Social Sciences.** (SOC SCI H1G)

Winter 2024 · **What is Disease?** (LPS H123)

Fall 2022 · Sabbatical

Winter 2023 · **What is Disease?** (LPS H123)

Winter 2023 · **Directed Research** (LPS 140)

Spring 2023 · **Causation and Explanation** (LPS 240)

Fall 2021 · **Honors: Critical Issues Social Sciences.** (SOC SCI H1G)

Fall 2021 · **Philosophy of Medicine** (LPS 140)

Spring 2022 · **What is Disease?** (LPS H123)

Spring 2022 · **Causal Pluralism** (LPS 240)

Spring 2022 · **Directed Research** (LPS 140)

Fall 2020 · **Honors: Critical Issues Social Sciences.** (SOC SCI H1G)

Fall 2020 · **Directed Research** (LPS 140)

Winter 2021 · **Philosophy of Medicine** (LPS 140)

Winter 2021 · **Independent Study** (LPS 298)

Spring 2021 · **Analogy in Science** (LPS 240)

Spring 2021 · **What is Disease?** (LPS H123)

Fall 2019 · **Philosophy of Medicine** (LPS 140)

Fall 2019 · **Independent Study** (LPS 298)

Winter 2020 · **What is Disease?** (LPS H123)

Winter 2020 · **Independent Study** (LPS 298)

Spring 2020 · **Making Modern Science** (LPS 60)

Spring 2020 · **Directed Research** (LPS 140)

Spring 2020 · **Causation and Explanation in Biology** (LPS 240) (with Jim Woodward)—rescheduled Covid-19.

Fall 2018 · **Philosophy of Medicine** (LPS 140)

Winter 2019 · **Biology, Behavior, and Genes** (LPS 240)

Winter 2019 · **What is Disease?** (LPS H123)

Spring 2019 · **Making Modern Science** (LPS 60)

Fall 2017 · **Philosophy of Medicine** (LPS 140)

Winter 2018 · **Scientific Explanation** (LPS 240)

Spring 2018 · **Making Modern Science** (LPS 60)

University of California, Irvine, School of Medicine (UCI-SOM)

Fall 2018 · **History of Medicine Elective**

Class on Germ Theory and Modern Medicine; December 2018

University of Pittsburgh, HPS

Spring 2015 · **Causal Reasoning**, Independent Teaching

Fall 2014 · **Mind and Medicine**, Independent Teaching

Spring 2013 · **Mind and Medicine**, Teaching Assistant for James Woodward

Fall 2012 · **Morality and Medicine**, Teaching Assistant for Sandra Mitchell

Professional Service

Associate Editor: for *The British Journal for the Philosophy of Science* (BJPS) 2024-current.

Editorial Board: for *Philosophy of Science*, the official journal of the Philosophy of Science Association (PSA), 2023-current.

Subject Editor: *Philosophy of Medicine* Journal, 2024-current.

PSA Nominating Committee: for the Philosophy of Science Association (PSA), 2023-current.

Panel Reviewer for National Science Foundation (NSF) Review panel for NSF grants in the Science and Technology Studies category: including applications for NSF CAREER awards, Doctoral Dissertation Research Grants, Research in Undergraduate Institutions (RUI) grants, and Doctoral Dissertation Research Improvement Grants (DDRIG), 2024.

Symposium organizer: “Constraints and Explanation in Science”. Philosophy of Science Association (PSA). Pittsburgh, PA 2022.

Commenter: “Philosophy and Neuroscience Graduate Student Showcase”. American Philosophical Association (APA) Pacific Division Meeting, Vancouver BC, April 2022.

Poster reviewer: Philosophy of Science Association (PSA). Pittsburgh, PA. November 2021/2022.

Poster reviewer: Philosophy of Science Association (PSA). Baltimore, Maryland. November 2020/2021.

Symposium organizer: “Distinctions within causation: Irreversibility, coherence, invariance and machine-likeness”. Philosophy of Science Association (PSA). Baltimore, Maryland. November 2021.

Symposium organizer: “Causal complexity in Functional Biology and Medicine,” (with Bill Bechtel). European Philosophy of Science Association (EPSA). Geneva, Switzerland. September 2019.

Cocoon job-market mentoring program: Advised job-market candidates,

who had little access to mentoring.

Symposium organizer: “Strategies For Dealing With Causal Complexity,” (with J. Woodward, K. Kendler, N. Weinberger). Philosophy of Science Association Biennial Meeting. Seattle, Washington. November 2018.

Organizing committee: “From Biological Practice to Scientific Metaphysics,” (with K. Waters, A. Love, M. Weber, and W. Wimsatt), Taiwan. July 2018.

Chair: Panel Symposium on From Biological Practice to Scientific Metaphysics: “The pioneering work of William C. Wimsatt National Taiwan University, National Chung Cheng University. July 2018.

Chair: Pacific APA Session for Book Symposium: Anna Alexandrova, A Philosophy of Science of Well-being. March 2018.

Program committee member: British Society for the Philosophy of Science (BSPS). Oxford July 2017.

Program committee member: “Reductionism and Integration, Bioethics and Behavior: A Conference Celebrating the Career of Kenneth F. Schaffner,” (with J. Tabery, K. Tabb, and T. Cunningham), University of Pittsburgh, Center for Philosophy of Science, September 2016.

Organizing committee: “From Biological Practice to Scientific Metaphysics,” (with K. Waters, A. Love, M. Weber, and W. Wimsatt), University of Geneva, August 2016.

Organizing committee: “Practices of Individuation and Classification in Science,” (with K. Waters, A. Love, M. Weber, and W. Wimsatt), University of Calgary, June 2017.

Selection committee member: Poster Session Philosophy of Science Association (PSA) Meeting. Baltimore, Maryland.

Referee For: *Philosophy of Science, British Journal for the Philosophy of Science, Philosophical Studies, Synthese; International Studies in the Philosophy of Science, Biology & Philosophy, Studies in History and Philosophy of Science Part C, Erkenntnis, Topics in Cognitive Science (topiCS), Science and Engineering Ethics, European Journal for Philosophy of Science, Psychological Review, Cognitive Systems Research, Philosophy of Medicine, BioEssays, Lato sensu, The Proceedings of the National Academy of Sciences (PNAS), Journal for General Philosophy of Science, European Journal of Neuroscience, Journal of Experimental Psychology: Learning, Memory, and Cognition.*

**University
Service**

Advisory Board Member: School of Social Sciences Committee on Faculty Diversity, Inclusion and Development (CFDID); University of California, Irvine; 2020-current.

Executive Committee Member: School of Social Sciences, University of California, Irvine; 2020-2023.

Director Summer Diversity Program (SDP) University of California, Irvine; Department of Logic and Philosophy of Science. 2020-current.

Placement Director. University of California, Irvine; Department of Logic and Philosophy of Science. 2019-summer 2023.

Co-Colloquium director: University of California, Irvine; Department of Logic and Philosophy of Science. 2017-19.

Graduate Admissions Committee Member: University of California, Irvine; Department of Logic and Philosophy of Science. 2018-19.

Department Hiring Committee: University of California, Irvine; Department of Logic and Philosophy of Science. 2018-19, 2021-22.

Summer Teaching Apprenticeship Program (STAP) Mentor: University of California Irvine; 2020-21.

Chair: “Cultivating your research process,” Hypatia conference “Woman and Academia,” University of California, Irvine. Irvine, California. May 2019.

Presenter, LPS Graduate Student Career Day, University of California, Irvine, Spring 2019, Spring 2020, Spring 2023

Advisory Committee: Program in the Medical Education for the Latino Community (PRIME-LC), University of California, Irvine; School of Medicine (UCI-SOM).

Advisory Committee: Center for Neuropolitics, University of California, Irvine; School of Medicine (UCI-SOM). 2021-current.

**Graduate
Student
Committees**

Lauren Wigod (LPS) advancement committee (**chair**).

Ryan Chen (LPS) advancement committee, dissertation committee (**co-chair**).

Jaehyun Lee (LPS) advancement committee (**chair**).

Sophie Machavariani (LPS) advancement committee (**chair**).

Ben Genta (LPS) advancement committee, dissertation committee (**co-chair**).

Jessica Lauman-Lairson (LPS) advancement committee (co-chair), dissertation committee (**co-chair**).

Ari Khoudary (LPS) advancement committee, dissertation committee.

Isaac Saldivar (Philosophy) advancement committee, dissertation committee.

Margaret Farrell (LPS) advancement committee, dissertation committee.

True Gibson (LPS) advancement committee, dissertation committee.

Angela Chen (Cog sci) advancement committee.

Adam Chin (LPS) advancement committee, dissertation committee.

Elizabeth Lapidow (Department of Psychology; UC San Diego) Advancement committee; Dissertation committee.

Tyler Kerr (Chemistry) advancement committee.

Andrew Bollhagen (Philosophy, UC San Diego) advancement committee, dissertation committee; Fall 2020-current.

Jessica Gonzalez (LPS) advancement committee, dissertation committee.

Angelica Lee (Psychology, UC Irvine) Honors Thesis Advisor.

Alysha Kassam (LPS) advancement committee, dissertation committee.