

Ryan O'Loughlin

Curriculum Vitae

Areas of Specialization: Philosophy of
Climate Science, Scientific Modeling,
Values in Science

Areas of Competence: History and
Philosophy of Science, Logic,
Environmental Philosophy

Department of Philosophy
Queens College CUNY
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Flushing NY 11367

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EMPLOYMENT

- 2025-** **CUNY Graduate Center**
 Doctoral faculty member in Earth and Environmental Sciences
- 2022-** **Queens College City University of New York**
 Assistant Professor of Philosophy

EDUCATION

- 2017-2022** **Ph.D. Indiana University-Bloomington (June 2022)**
 History and Philosophy of Science
 Dissertation: "The Role of Model Intercomparisons in Climate Science."
 Chair: Elisabeth Lloyd
- 2015-2017** **M.A. Ohio University**
 Philosophy
 Thesis: "Thomas Kuhn and Perspectival Realism."
- 2010-2014** **B.S. University of Wisconsin-Stevens Point**
 Sociology (cum laude)

PUBLICATIONS

Peer-reviewed Journal Articles

- 2025 **O'Loughlin, R.,** Li, D., Neale, R., and O'Brien, T.A. "Moving beyond post hoc explainable artificial intelligence: a perspective paper on lessons learned from dynamical climate modeling," *Geoscientific Model Development*, 18, 787–802, <https://doi.org/10.5194/gmd-18-787-2025>
- 2024 O'Loughlin, R., "Why we need lower-performance climate models," in *Climatic Change*, 177(2), 1-21. <https://doi.org/10.1007/s10584-023-03661-7>

- 2023 O'Loughlin, R. "Diagnosing errors in climate model intercomparisons," in *European Journal for Philosophy of Science*. 13(2). 1-29. <https://doi.org/10.1007/s13194-023-00522-z>
- 2022 **O'Loughlin, R.**, and Dan Li. "Model Robustness in Economics: the admissibility and evaluation of tractability assumptions," in *Synthese*. 200, 1-23. <https://doi.org/10.1007/s11229-022-03608-y>
- 2021 O'Loughlin, R. "Robustness Reasoning in Climate Model Comparisons" in *Studies in History and Philosophy of Science: Part A*. 85, 35-43. <https://doi.org/10.1016/j.shpsa.2020.12.005>
- 2020 O'Loughlin, R. "Seepage, Objectivity, and Climate Science" in *Studies in History and Philosophy of Science: Part A*. 81, 74-81. <https://doi.org/10.1016/j.shpsa.2019.07.002>

Invited papers, reviews, and other publications

- 2026 O'Loughlin, Ryan. [In-progress review essay] "Philosophical Issues in Climate Modeling," *Comprehensive Philosophy of Science: Philosophy of the Geosciences*, edited by Miguel Ohnesorge and Aja Watkins.
- 2025 O'Loughlin, Ryan. [book review] "Values in Science, written by Kevin Elliott", *Journal of Moral Philosophy* (published online ahead of print 2025). <https://doi.org/10.1163/17455243-20221202>

O'Loughlin R., and Stuart Gluck. "Confirmation and Robustness of Climate Models," in *Philosophy, Feminism, and Science: Critical Perspectives on the Work of Elisabeth A. Lloyd*, Edited by Ryan Ketcham and Michael R. Dietrich (University of Pittsburgh Press, Under contract)

- 2021 O'Loughlin R. "The Influence of Climate Contrarianism on Scientific Research" in the Fall issue (No. 104) of the Canadian Society for History and Philosophy of Science's *Communiqué* <https://cshps.ca/no-104-autumn-automne-2021/>

Public-facing writing

- 2025 O'Loughlin, Ryan. "Why imperfect climate models are more helpful than you think." *Yale Climate Connections*. <https://yaleclimateconnections.org/2025/06/why-imperfect-climate-models-are-more-helpful-than-you-think/>

AWARDS AND GRANTS

- 2025 PSC-CUNY Cycle 56 Research Grant, Summer (\$3500)
- 2023 Queens College Research Enhancement Grant, for travel to NCAR in Spring 2024 (\$1000); additional \$2500 provided by Mellon Foundation Fund
- PSC-CUNY Cycle 54 Research Grant, Summer (\$3500)

- 2022 Victor E. Thoren Graduate Student Research Fellowship (\$3000), awarded to an exceptional student near the conclusion of their graduate career. Indiana University, HPSC dept.
- 2021 Travel Support from the National Science Foundation (Philosophy of Science Association Biennial Meeting)
- 2019 APA Graduate Student Stipend Award (Pacific Division American Philosophical Association meeting)
- 2018 Travel Support from the National Science Foundation (Philosophy of Science Association Biennial Meeting)
- Indiana University's Graduate and Professional Student Government Travel Award for travel to 2019 Pacific Division American Philosophical Association meeting
- 2017 Mary Spetnagel Philosophy Award for outstanding accomplishments in the second year of graduate study. Ohio University, Department of Philosophy
- Outstanding Teaching Assistant Award. Ohio University, Department of Philosophy
- 2016 Idus Murphree Award for outstanding performance in the first year of graduate study. Ohio University, Department of Philosophy
- Student Achievement Award for work in scientific modeling and fictions; nominated by Yoichi Ishida. Ohio University, Department of Philosophy

TALKS AND PRESENTATIONS

Invited Talks

- 2025 "From Robustness to Antifragility: A Philosophical Perspective on Climate and Earth System Models." Colloquium talk at Brown University's Department of Earth, Environmental, and Planetary Sciences. Sept. 25, Providence, RI
- "Convergence, Divergence, and Trust in Climate Models." Seminar program for the Environmental Science Initiative at the CUNY Advanced Science Research Center. (Mar. 12th), New York, NY.
- 2023 "A philosophical take on error and lower-skill models in climate science." Queens College School of Earth and Environmental Sciences Colloquium (Sept. 27th), Queens, NY
- "Why we should want models to disagree: the value of "bad" models in climate science." NASA Goddard Institute for Space Studies (May 3), New York, NY
- 2022 "Why we should want models to disagree: the value of error diagnosis and low-skill models in climate science." National Center for Atmospheric Research, Climate & Global Dynamics lab (Oct. 25) Boulder, CO; presented virtually

Peer-Reviewed Conference Presentations

- 2025 “When Are Small-Scale Field Experiments in Solar Geoengineering Worth Pursuing?” World Climate Research Programme’s Virtual Workshop Series on Stratospheric Aerosol Injection. Scheduled for Oct. 6-9.
- *“Moving beyond post hoc Explainable Artificial Intelligence: lessons learned from dynamical climate modeling.” Machine Learning for Actionable Climate Science Gordon Research Conference, (June 22-27), Smithfield Rhode Island.
- 2024 * “Can philosophers help make advances in climate modeling?” Philosophy of science Past, Present, and Future, Minnesota Center for Philosophy of Science, (Oct. 17-19), Minneapolis, MN.
- 2023 “Can subpar models contribute to climate justice? The case of geoengineering research,” Society for the Social Studies of Science 2023 conference (Nov. 8 -11) Honolulu, HI.
- “The value of error and failure in climate modeling: a philosophical perspective.” World Climate Research Programme Open Science Conference, (Oct. 23-27), in Kigali Rwanda; presented virtually.
- “Diagnosing Errors in Climate Model Intercomparisons,” Long Island Philosophical Society, Annual Conference (April 1st) at St. John’s University, Queens NY.
- 2022 “Competition and pluralism in climate modeling,” Philosophy of Science Association 2022 Biennial meeting (Nov. 10-13) in Pittsburgh, PA
- 2021 “Tractability Assumptions, Holism, and Model Robustness.” Philosophy of Science Association 2020 Biennial meeting (Nov. 11-14) in Baltimore, MD
- “Historical and Contemporary Climate Model Intercomparisons: Lessons for Pluralism in Modeling.” 8th Biennial Meeting of the European Philosophy of Science Association (Sept. 15-18); presented virtually
- “Climate model comparisons: history and philosophical implications.” Canadian Society for the History and Philosophy of Science Annual Meeting (May 29 – June 2) held virtually
- “Can we infer an absolute timescale via local data? Lessons from Paleoclimatology,” [paper co-authored with Dan Li]. Boston University Philosophy Grad Student Conference (April 22-23) held virtually
- 2019 “Climate Models: Robust and Explanatory.” 13th Graduate Climate Conference (Nov. 7-10) in Woods Hole, MA
- “Objectivity, Seepage, and Climate Science.” Pacific Division American Philosophy Association meeting (April 17-20) in Vancouver, BC
- “Objectivity, Seepage, and Climate Science.” 3rd IU Graduate Student Conference on the History and Philosophy of Science and Medicine (March 29th-30th), in Bloomington, IN
- 2018 * “A challenge to Seepage in the Global Warming ‘hiatus’.” American Geophysical Union meeting (Dec. 10-14), in Washington D.C.

*“A challenge to Seepage in the Global Warming ‘hiatus’.” Philosophy of Science Association Biennial meeting (Nov. 1-4) in Seattle, WA

2016 “The Problem with Regarding Models as Fictions.” Mid-South Philosophy Conference (Feb. 19-20) at Rhodes College in Memphis, TN

*Poster Presentation

Workshops and lunchtime talks

- 2025 [With Dan Li] “Moving beyond post-hoc XAI: A perspective paper on lessons learned from dynamical climate modelling” (Feb. 12th). Climate and Global Dynamics Machine Learning group. Boulder, CO; presented virtually
- 2024 “The Ethics of Researching Stratospheric Aerosol Injections,” at NASA Goddard Institute for Space Studies (Dec. 4th), New York, NY
- 2024 “Value-laden research and Climate Interventions,” at NASA Goddard Institute for Space Studies (May 29th), New York, NY
- 2024 “Philosophy and Modeling Earth’s Future,” at Queens College, Social Science Faculty Research Seminar (April 8th), Flushing, NY
- 2023 [With Dan Li] “Holism in Climate Modeling” at NASA Goddard Institute for Space Studies (Dec. 20), New York, NY

RESEARCH EXPERIENCE & TRAINING

- 2018-2021 Research Assistant to Prof. Elisabeth Lloyd, Indiana University Bloomington.
- 2019&2021 Research Assistant for Elisabeth Lloyd’s “A Methodological Study of Big Data and Atmospheric Science,” (NSF #1754740) at the National Center for Atmospheric Research, Boulder, CO.

TEACHING EXPERIENCE & PEDAGOGY

Queens College-City University of New York

Intro to Philosophy (FA22, SP23, FA23, SP24, FA24, SP25, SU25, FA25)

Philosophy of the Environment (FA22, SP23, SP24, FA24, FA25)

Philosophy of the Natural Sciences (SP25)

-cross-listed philosophy and environmental sciences course, special topic:
Pluralism and Indigenous perspectives on climate science

Problems in Philosophy: Why should we trust (climate) models if they’re all wrong?
(FA23)

-cross-listed philosophy and environmental sciences course

Pedagogy

2025 Open Educational Resource Winter Intensive Faculty Fellowship (\$2000 stipend)

Indiana University-Bloomington

As main instructor:

Geoengineering and Climate Change: the ethical, the practical, and the wicked, a self-designed undergraduate course. FA21. Selected by the Board of Educational Programmers and the Collins Faculty Curriculum Committee. Collins Living and Learning Center

Scientific Reasoning, an undergraduate course. SP18, FA19, SP20*, Fall 2020*, SP21*. Department of History and Philosophy of Science and Medicine

*Taught online, combination of synchronous and asynchronous class structure

Environmental Science, a 2-week summer course for high school students. Summer 2019. Co-taught. Foundations in Science and Mathematics Program

As teaching assistant:

The Intricate Human: Global Climate Change: Linking Human and Planetary Health. SP22. (Andrew Libby and Michael Wasserman).

Evolution and Creationism. FA17. (Elisabeth Lloyd). Course was a cross-listed Social and Historical Studies College of Arts and Sciences course

Pedagogy

2021 Intercultural Competence Certificate. Professional training to develop skills in intercultural communication and collaboration.

Ohio University

As main instructor:

Principles of Reasoning, SU16, FA16, and SP17. Dept. of Philosophy

As teaching assistant:

Principles of Reasoning. FA15 (Yoichi Ishida) and SP16 Alfred Lent). Dept. of Philosophy

SERVICE TO THE DEPARTMENT AND COLLEGE

Queens College-City University of New York

- 2025-2026 Member of Personnel and Budget committee
 Philosophy Club: AI and I (scheduled for November 19th)
 Academic Renewal Initiative (representative for School of Social Sciences)
- 2024-2025 Member of Personnel and Budget committee
 Advisor for master's thesis (Jonathan Baruch, now at UPenn Law)
 Reviewer for Social Science Research Enhancement Grants (13 total)
 PSC Grant Reviewer: Anthro, Classics, Philosophy, Linguistics (2 total)
- 2023-2024 Member of Personnel and Budget committee
 PSC Grant Reviewer: Anthro, Classics, Philosophy, Linguistics (3 total)
 Philosophy Club: Truth and Justice Panel (March 10th)
- 2022-2023 External Member of SEES search committee
 Philosophy lecturer-line search committee member
 Advisor for undergraduate senior thesis (Leonard Wu)
 Co-led (with Dan Li) Philosophy Club discussion:
 “How not to be replaced by AI: decision making and human values in a
 changing world” (May 10th)

Indiana University-Bloomington

- 2020-2022 IU HPS Graduate Student Weekly Writing Group (Organizer)
 2018-2019 Chair (President), IU HPS Graduate Student Association
 2017-2018 Social Chair, IU HPS Graduate Student Association

PROFESSIONAL SERVICE AND AFFILIATIONS

Referee for Research Grants

Swiss National Science Foundation (2024)

Referee for Academic Journals

Philosophy of Science (2025); *Synthese* (2025), *British Journal for the Philosophy of Science* (2021, 2024, 2025); *Science of the Total Environment* (2021); *European Journal for Philosophy of Science* (2023, 2024, 2025); *Journal for General Philosophy of Science* (2025); *Frontiers in Climate* (2023)

Conference Planning, Chairing, and Commentary

- 2024 Eastern Division APA. New York, NY. Jan. 15-18. Commentary for Ezekial Vergara's
 “Just Cause, Economic Sanctions, and Climate Change.”
- 2022 American Geophysical Union 2022 Meeting. Convener for session “Making Climate
 Models & Data Actionable: Evaluating and Quantifying Uncertainty in Climate Models
 and Emulators”

- 2021 Philosophy of Science Association 2020 Biennial Meeting. Chair for session, “Why Trust Science?”
- 2021 Canadian Society for the History and Philosophy of Science. Chair for session on climate science and policy
- IU HPS Workshop on Ethical, Epistemological, and Historical Perspectives on Public Health and Wellness (program committee)
- 2020 Central Division APA. Chicago, IL, Feb. 26-29. Commentary for Corey Dethier’s “Statistically indistinguishable ensembles and the evaluation of climate models”
- 2019 IU HPS Women’s Conference. Bloomington, IN, Oct. 26th (Co-lead organizer with Luma Melo)
- 3rd Annual IU HPS grad student conference. Bloomington, IN, March 29-30th. Program committee and commentary for Ilyas Manakkadavan’s “New Reproductive Technology: Medical Discourse, Belief and Faithful Reasoning: ‘Islamic’ Response from Muslims of Kerala”
- 2018 2nd IU Annual IU HPS grad student conference. Bloomington, IN, March 23-24th. Program committee and commentary for Mousa Mohammadian’s “From Peirce’s Abduction to Lipton’s Inference to the Best Explanation: Two Historical Developments Fill the Gap”

Memberships

Philosophy of Science Association
 European Philosophy of Science Association
 American Philosophical Association
 American Geophysical Union
 Society for the Social Studies of Science

Outreach

CUNY Climate Consortium (C3) (2023 - present)
 Science Fest at Indiana University-Bloomington (2017, 2018)
 Makah Water Foundation in Cameroon, Africa. Study abroad volunteer trip (Winter 2013)

LANGUAGES

English (native)
 Mandarin Chinese (intermediate proficiency in both speaking and reading)