

# Clara Bradley

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## Research Interests

AOS Philosophy of Physics, Philosophy of Science  
AOC Logic, Formal Epistemology, Social Epistemology

## Employment

Jan 2025 – **Lecturer, University College London**  
Department of Philosophy

## Education

2019 – 2024 **University of California, Irvine**  
Department of Logic and Philosophy of Science  
Ph.D. Philosophy (October 2024)  
  
Graduate Emphasis in Physics  
Dissertation: “Symmetry and Equivalence in the Constrained Hamiltonian Formalism”  
Advisor: James Owen Weatherall

2015 – 2019 **University of Bristol**  
M.Sci. Physics and Philosophy  
*First-Class Honours*

## Publications

2025 **Do First-Class Constraints Generate Gauge Transformations? A Geometric Resolution**  
*The British Journal for the Philosophy of Science, Forthcoming.*

2025 **Excess Structure in the Constrained Hamiltonian Formalism**  
*Philosophy of Science, Forthcoming.*

2025 **The Relationship Between Lagrangian and Hamiltonian Mechanics: The Irregular Case**  
*Philosophy of Physics, 3(1): 9, 1-23. <https://doi.org/10.31389/pop.197>.*

2023 **The Representational Role of Sophisticated Theories**  
*Philosophy of Science, pp. 1–10. <https://doi.org/10.1017/psa.2023.131>.*

2022 **Mathematical Responses to the Hole Argument: Then and Now**  
with James Owen Weatherall.  
*Philosophy of Science, 89 (5):1223-1232. <https://doi.org/10.1017/psa.2022.58>.*

2021 **The Non-Equivalence of Einstein and Lorentz**  
*The British Journal for the Philosophy of Science, 72(4):1039-1059.*  
<https://doi.org/10.1093/bjps/axz014>.  
Editors' Choice Article.

2020 **On Representational Redundancy, Surplus Structure, and the Hole Argument**  
with James Owen Weatherall.  
*Foundations of Physics, 50:270–293. <https://doi.org/10.1007/s10701-020-00330-y>.*

## Works in Progress

**We Have Never Been Sophisticated (with James Owen Weatherall)**  
Under Review [draft available].

**Revisiting the ‘Hole Argument’ and the ‘Problem of Time’**  
In Preparation.

**A paper on dynamic deliberation and game-theoretic solution concepts (with Calum McNamara)**  
In Preparation.

## Invited Talks

September 2025 The Difference Between Reduction and (Internal) Sophistication Is Pragmatic  
*Cambridge-LMU workshop, Cambridge*

June 2025 Revisiting the ‘Hole Argument’ and the ‘Problem of Time’  
*BLOC Workshop, KCL*

May 2025 The Relationship Between Lagrangian and Hamiltonian Mechanics: The Irregular Case  
*Popper Seminar, LSE*

April 2025 The Relationship Between Lagrangian and Hamiltonian Mechanics: The Irregular Case  
*CamPos, Cambridge*

March 2025 Are Reduction and Sophistication Always Viable Alternatives?  
*University of Bristol Research Seminar*

March 2025 Are Reduction and Sophistication Always Viable Alternatives?  
*Oxford Philosophy of Physics Seminar*

May 2024 The Relationship Between Lagrangian and Hamiltonian Mechanics: The Irregular Case  
*New Directions in the Foundations of Physics Conference*

October 2023 The Relationship between Lagrangian and Hamiltonian Mechanics: The Irregular Case  
*Symmetry and Structure Workshop, Irvine*

May 2023 Do First-Class Constraints Generate Gauge Transformations? A Geometric Perspective  
*Quantum Spacetime in the Cosmos Conference, Perimeter Institute*

November 2022 Do First-Class Constraints Generate Gauge Transformations? A Geometric Perspective  
*Foundations of Physics @ Harvard Series (Online)*

February 2022 Partial Observables and Representational Redundancy  
*University of Bristol Philosophy of Science Seminar (Online)*

June 2019 The Non-Equivalence of Einstein and Lorentz  
*Oxford Philosophy of Physics Group, Oxford*

September 2018 The Non-Equivalence of Einstein and Lorentz  
*UC Irvine Philosophy of Physics Research Group, Irvine*

## Refereed Talks

November 2024 The Extended Hamiltonian is Not Trivial  
*PSA 29th Biennial Meeting, New Orleans*

July 2023 Do First-Class Constraints Generate Gauge Transformations? A Geometric Perspective  
*21st European Conference on Foundations of Physics, Bristol*

November 2022 The Representational Role of Sophisticated Theories  
*PSA 28th Biennial Meeting, Pittsburgh*

November 2021 Mathematical Responses to the Hole Argument: Then and Now  
*PSA 27th Biennial Meeting, Baltimore*

October 2021 The Significance of Isomorphic Models  
*20th European Conference on Foundations of Physics, Paris*

July 2017 The Non-Equivalence of Einstein and Lorentz  
*The British Society for the Philosophy of Science Annual Conference, Edinburgh*

## Outreach Talks

January 2026 What Makes Science, “Science”?  
*Westminster School, London*

December 2025 Philosophy of Physics and Space-Time  
*Oxford Continuing Education Day, Oxford*

## Teaching Experience

### **Lecturer, UCL**

2025, 2026 Philosophy of Space and Time

2025, 2026 Formal Epistemology

2025 Science and Pseudoscience

### **Instructor of Record, UC Irvine**

Fall 2023 Introduction to Logic  
*Outstanding Teaching Award*

### **Guest Lecturer**

Spring 2023 Structure and Equivalence, UC Santa Barbara (Thomas Barrett)

## Awards, Grants and Recognition

- 2024 Outstanding Scholarship Award \$500 (University of California, Irvine)
- 2024 Justine Lambert Paper Prize \$1000 (University of California, Irvine)
- 2023 Outstanding Teaching Award for Introduction to Logic (University of California, Irvine)
- 2019–2025 Social Science Merit Scholarship (University of California, Irvine)
- 2019-2022 Provost Fellowship \$20,000 (University of California, Irvine)
- 2019 Graduate Dean's Recruitment Fellowship \$5000 (University of California, Irvine)
- 2019 Peter Fowler Memorial Prize for Continued Excellence (University of Bristol)
- 2019 Philosophy Finalist Prize (University of Bristol)
- 2018 Undergraduate Faculty of Science Award (University of Bristol)

## Professional Service

- 2025-26 Departmental Tutor for Year 2 Undergraduates (UCL)
- 2025-26 Head of Student Engagement (UCL)
- 2025-26 Department Events Liaison (UCL)
- August 2023 Panelist and Speaker at LPS Summer Diversity Program (UC Irvine)
- 2022–2023 LPS Graduate Representative (UC Irvine)
- 2018–2019 Administrator for the Centre for Science and Philosophy (University of Bristol)

Journal Referee: *Philosophy of Science*, *The British Journal for the Philosophy of Science*, *Studies in History and Philosophy of Science*, *European Journal for the Philosophy of Science*, *Philosophy of Physics*.