# CoCo Seminar Series Fall 2025

# Towards a Data-Driven Understanding of Debate in Science

**Dr. Dakota Murray, Assistant Professor, Information Science and Technology, University at Albany**

**Wednesday October 29, 2025 10:00-11:00am EDT**

**Hybrid (EB-T1 & Zoom; meeting link available on http://coco.binghamton.edu/)**

Healthy debate among scientists drives the creation of new knowledge and is a necessary precursor to consensus upon which technologies, policies, and new knowledge can be built. Yet, in spite of its prominence in popular and theoretical models of scientific progress, disagreement has received little empirical attention, with progress stymied by a lack of appropriate data and widely-accepted quantitative indicators. In this talk, I present a research program aiming to establish a robust and data-driven understanding of debate in science. I use data on instances of disagreement extracted from the full-text of papers, as well as formal published criticism. Findings of this project include the incidence of debate across scientific disciplines, temporal changes, the demographics of authors involved in debates, and the career consequences for those involved. This project establishes a firm methodological and empirical foundation for a science of scientific disagreement, which will prove essential for validating theories of scientific progress, building tools for scholarly search and discovery, designing consensus-aware science policy, and for effectively communicating epistemic uncertainty and consensus to the public.

Dakota Murray is an assistant professor in the department of Information Science and Technology at the University at Albany. He earned a doctorate in Informatics from Indiana University – Bloomington. Since then, he has worked as a professional data scientist at Digital Science where he provided bibliometric consultation for national funding agencies, and then later as a research faculty at the Network Science Institute at Northeastern University. Dr. Murray's research aims to understand the social forces and networks of communication underpinning knowledge production. His work blends data-driven and computational approach with theory from sociology, philosophy and science and technology studies. Specific projects have examined disagreement in science, scientists' mobility, interdisciplinary collaboration and open source software ecosystems. His work has been featured in venues such as PNAS, Nature, Nature Human Behavior, and JASIST.

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