



NISS

National Institute of
Statistical Sciences

CoLab

Week-Long Ideas Lab

**October
20-24, 2025**

DATA SCIENCE

AT
THE **INTERSECTION**
OF PUBLIC
HEALTH
& **THE ENVIRONMENT**



Applications Open Location: IMSI, Chicago, IL

Registration deadline: Monday, August 25, 2025

**APPLY
HERE**



The [Institute for Mathematical and Statistical Innovation \(IMSI\)](#) and the [National Institute of Statistical Sciences \(NISS\)](#) are organizing a workshop on Data Science at the Intersection of Public Health and the Environment. This event will bring together experts from diverse fields to explore innovative methodologies, foster collaboration, and address pressing challenges in public and environmental health using data science techniques. This workshop will take place at the Institute for Mathematical and Statistical Innovation (IMSI) on the campus of the University of Chicago. This workshop will feature an intensive in-person research studio or ideas lab, fostering high-impact interdisciplinary collaboration. The event will commence with keynote presentations and tutorial sessions, followed by iterative brainstorming and working group formation.

Workshop Key Research Areas:

New inferential approaches: Summarizing, linking, and analyzing diverse datasets from epidemiological studies, health registries, environmental monitoring; surveys to uncover shared patterns, trends, associations, & causal relationships. **Species abundance and diversity modeling:** Leveraging big data to assess ecosystem and biodiversity health across different spatial and temporal resolutions. **Innovative sampling techniques:** Designing efficient and representative data collection methods while quantifying variability, bias, and uncertainty in joint environmental and health studies. **Co-modeling of extremes:** Developing methodologies to model the probability and magnitude of rare events in both environmental and human health domains (e.g., floods, wildfires, droughts, pandemics, food insecurity). **Mathematical modeling of environmental systems:** Simulating biological, physical, and chemical processes, hypothesizing tipping points, and integrating causal models to assess intervention impacts.

Virtual Session Pre-Workshop: August 21, 2025

- Panelists: **Christopher Wikle**, University of Missouri; **Marianthi-Anna Kioumourtoglou**, Columbia University and **Jonathan Hobbs**, Jet Propulsion Lab; Moderated by **Bo Li**, Washington University in St. Louis.
- Open to everyone to attend, [register on NISS website](#).

In-Person Workshop (5 days): October 20-24, 2025

- Keynote presentations on grand challenges & cutting-edge methodologies.
- Facilitated small-group discussions alternating with full-group presentations and feedback sessions.
- Development of concrete research questions, collaborative writing, and initial project ideation.

Post-Workshop Activities:

- Follow-up meetings for research working groups.
- Themed virtual events (hackathons, data visualization sessions, poster sessions for new researchers).
- Potential joint IMSI-NISS long-term research programs.

How to Apply:

- In order to register for this workshop, you must have an IMSI account and be logged in. Please login or create an account on the IMSI website.
- Eligibility: Open to all researchers, with emphasis on interdisciplinary collaborations. We invite researchers from academia, government, and industry with expertise in statistics, epidemiology, environmental science, and related fields to apply.
- Participants interested in presenting research or contributing ideas should also submit a 300-word abstract in the application summarizing research focus and relevance to workshop themes, key methodologies employed, and potential collaborative research questions.
- Application Process: Fill out the application at the bottom of the application webpage. It is visible if you are signed into your IMSI website account.
- Selection Criteria: Participants will be selected based on their research alignment, expertise, and potential contribution to collaborative efforts.
- Registration and attendance is fully funded thanks to the National Science Foundation through IMSI.

CONTACT INFORMATION

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