# Department of Biostatistics and Medical Informatics Seminar

## Caroline Uhler, PhD
Professor of EECS and IDSS at MIT

**Friday, February 9, 2024**
**12:00-1:00 pm**
**Virtual (only) Zoom Link**
https://uwmadison.zoom.us/j/95515534304?pwd=NnR5TnNmZXpEMWJBV2wvYTA1bjMvQT09

## Multimodal Data Integration: From Biomarkers to Mechanisms

**Abstract:** An exciting opportunity at the intersection of the biomedical sciences and machine learning stems from the growing availability of large-scale multi-modal data (imaging-based and sequencing-based, observational and perturbational, at the single-cell level, tissue-level, and organism-level). Traditional representation learning methods, although often highly successful in predictive tasks, do not generally elucidate underlying causal mechanisms. I will present initial ideas towards building a statistical and computational framework for causal representation learning and its applications towards identifying novel disease biomarkers as well as inferring gene regulation in different disease contexts.

**Bio**: Caroline Uhler is a core institute member of the Broad Institute of MIT and Harvard, where she directs the Eric and Wendy Schmidt Center. She is also a full professor in the Department of Electrical Engineering and Computer Science and the Institute for Data, Systems, and Society at MIT. Uhler is recognized as a creative and innovative researcher and teacher at the intersection of machine learning, statistics, and biology. She has received multiple prestigious career prizes including a Simons Investigator Award, a Sloan Research Fellowship, a Sofja Kovalevskaja Award, and an NSF Career Award.

School of Medicine
and Public Health
UNIVERSITY OF WISCONSIN–MADISON