

**University of California, Irvine  
Statistics Seminar**

***Bridging Stochastic Mechanistic Modeling and Statistical  
Inference to Shed Light on Gene Regulation***

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**4 p.m., Thursday, October 7, 2021  
Join via Zoom: <https://tinyurl.com/4azdp5zh>**

Computational modeling of intracellular processes, such as the dynamics of gene regulation, is increasingly used as a research tool to complement laboratory experiments in cell and molecular biology. Mechanistic (or “bottom-up”) models start with hypotheses about molecular processes and then encode them into a mathematical and algorithmic framework for simulation of dynamics, in contrast to data-driven, “top-down” approaches. I will discuss current areas of research where we seek to bridge these two approaches, in order to maximize knowledge gained from -omics data. In one example, I will discuss how stochastic models of enzymatic processes that confer epigenetic marks on DNA aid interpretation of local correlations derived from epigenome sequencing, with implications for epigenome stability.