# Statistics Seminar

Department of Mathematics and Statistics

| | |
|---|---|
| **DATE:** | Thursday, November 30, 2023 |
| **TIME:** | 1:15pm – 2:15pm |
| **LOCATION:** | WH 100E |
| **SPEAKER:** | Praveen Niranda, Binghamton University |
| **TITLE:** | Network Reconstruction From High Dimensional Ordinary Differential Equations |

**Abstract**

This presentation is about a paper by Chen, S., Shojaie, A. & Witten, D. that proposes a novel method for learning a dynamical system from high-dimensional time-course data. A dynamical system is a system of variables that change over time according to some rules, such as a gene regulatory network. The paper's method uses a non-parametric model of additive ordinary differential equations (ODEs) and a sparsity-inducing penalty to estimate the network structure without estimating the derivatives of the variables, which are often noisy and inaccurate. This paper shows that the method can consistently recover the true network structure even in high dimensions and outperforms existing methods on synthetic and real data.