

# Indian Statistical Institute

## Applied Statistics Unit

### SEMINAR NOTICE

**Speaker:** N. Balakrishna, Cochin University of Science and Technology

**Title:** Parameter-driven models for zero-inflated count time series

**Date:** 26 April, 2022

**Time:** 16:15 PM

**Online Platform:** Google Meet ([meet.google.com/hss-fpwm-est](https://meet.google.com/hss-fpwm-est))

#### **Abstract:**

The standard form of an autoregressive (AR) model does not help in defining a similar model for count time series. A count time series may also be modelled by specifying its intensity function. There are mainly two classes of such models namely observation-driven and parameter-driven. In the case of observation-driven models, the intensity functions are generated by the past observations whereas, in parameter-driven models, they are generated by latent stochastic models. If the time series contains a greater number of zeros than those can be accommodated by a specified distribution, then zero-inflated models are used to analyze such series. In this talk, we propose a method for analyzing parameter-driven count time series with inflation of zeros. In particular, zero-inflated Poisson and zero-inflated negative binomial series with intensities generated by non-negative Markov sequences are studied in detail. Parameters of the model are estimated by the method of estimating equations which is facilitated by expressing the model in a generalized state space form. The latent intensities required for estimation are extracted using generalized Kalman filter. The applications of proposed model and its estimation methods are illustrated using simulated and real data sets.

\*Joint work with Muhammed Anvar and Bovas Abraham.

**All are invited to attend.**