

CoE-MaSS weekly seminar series

THE DST-NRF CENTRE OF EXCELLENCE IN
MATHEMATICAL AND STATISTICAL SCIENCES (CoE-MaSS)
PRESENTS A SEMINAR BY

Mr Timotheus Darikwa

*(Department of Statistics and Operations Research,
University of Limpopo)*

***“Statistical measures for multivariate
spatial autocorrelation”***

Friday, 2 August 2019

10h30-11h30

CoE-MaSS Seminar Room, 1st floor, MSB, Wits.

This seminar will discuss a publication written by Timotheus Darikwa, Samuel Manda and Maseka Leasoana. The aim was to develop a multivariate spatial autocorrelation extension of the Moran’s Index. A canonical correlation approach was proposed. The effectiveness of the method was established through some simulation studies and its usefulness was illustrated using spatially correlated cardiovascular (CVD) mortality in South Africa. Three CVA disease-related mortalities, i.e. cerebrovascular heart disease (CVA), ischaemic heart disease (IHD) and hypertensive heart disease (HHD) were analysed. Bivariate spatial dependency was found between CVA and IHD, and between CVA and HHD (p -value <0.05), but none between IHD and HHD (p -value >0.05). The multivariate spatial autocorrelation extension showed that CVA is spatially associated IHD and HHD. This method can easily be extended to more than three variables.



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