



# STATISTICS SEMINAR

Thursday, January 9, 2020  
111 Armes Bldg  
3:45 p.m.

**Dr. Shakhawat Hossain**

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The University of Winnipeg

## **“Shrinkage Estimation of the Exponentiated Weibull Regression Model for Time-to-Event Data”**

The exponentiated Weibull distribution is a convenient alternative to the generalized gamma distribution to model time-to-event data. It accommodates both monotone and non-monotone hazard shapes, and flexible enough to describe data with wide ranging characteristics. It can also be used for regression analysis of time-to-event data. The maximum likelihood method is thus far the most widely used technique for inference, though there is a considerable body of research of improving the maximum likelihood estimators in terms of asymptotic efficiency. For example, there has recently been considerable attention on applying James-Stein shrinkage ideas to parameter estimation in regression models. We propose non-penalty shrinkage estimation for the exponentiated Weibull regression model for time-to-event data. Comparative studies suggest that the shrinkage estimators can outperform the maximum likelihood estimators in terms of statistical efficiency. Overall, the shrinkage method may lead to more accurate statistical inference, a fundamental and desirable component of statistical theory.

This is the joint work with Dr. Shahedul Khan, Department of Mathematics and Statistics,  
University of Saskatchewan, Saskatoon, Saskatchewan, Canada

***Light refreshments will be served between 3:15-3:45 p.m. in 318D Machray Hall***