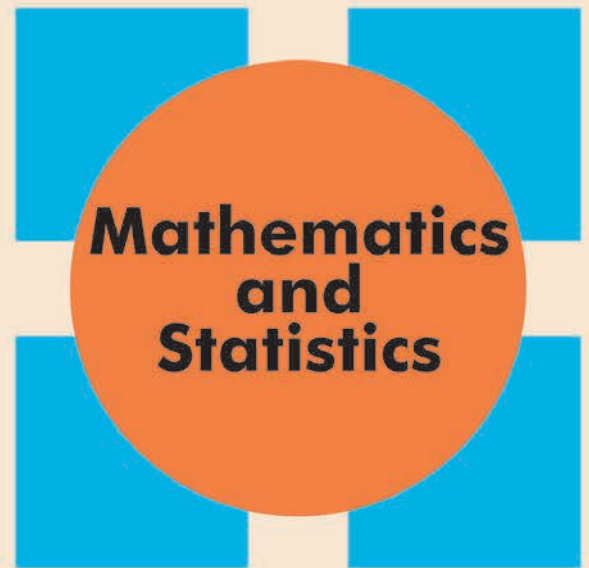


COLLOQUIUM

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Shrinkage estimation method of exponentiated Weibull regression model for time-to-event data



Monday, April 02, 2018; 1:30 - 2:30 PM; RI 208

Abstract: In this talk, we consider the exponentiated Weibull model, which includes as special cases the Weibull, log-logistic, and log-normal distributions. This model is broadly used to model time-to-event data in many studies and the primary focus of this data is to find the relationship between the time-to-event and the covariates. This leads to the regression model that may have many covariates, some of which may not be significantly related to the survival time. In that we use some auxiliary or non-sample information on insignificant covariates in the unrestricted model to produce a restricted model. The shrinkage estimators optimally combine the unrestricted and restricted model estimators and outperform the maximum likelihood estimator (MLE) under the quadratic loss. Asymptotic properties of these estimators including biases and risks will be discussed. A simulation study is conducted to assess the performance of the proposed estimators with respect to the unrestricted MLE. This study will be incorporated with varying sample sizes, different hazard shapes, and percentages of censored observations. Estimators will be compared based on bias, risk, and mean squared prediction error. The relevance of the proposed estimators will be illustrated with two real data sets. This is joint work with Shahedul Khan, University of Saskatchewan.