

MATHEMATICS RESEARCH SEMINAR

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123 University Hall

THE EFFECT OF MISSING DATA ON REPEATED MEASURES MODELS

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ABSTRACT: Researchers involved with longitudinal studies are faced with the problem of trying to get study subjects to return for every follow-up visit. There is always some amount of missing data when looking at these types of studies. The MIXED procedure of the SAS[®] enables examination of correlational structures and variability changes between repeated measurements on experimental units across time. While PROC MIXED has the capacity to handle unbalanced data when the data are missing at random, a question arises as to when the degree of sparseness jeopardizes inference regarding the variance-covariance error structure of the multivariate repeated measures. Simulation is a tool that can be used to answer these types of questions. This paper shows the application of simulation to determine inference problems in a data set with a specific pattern of missing data. This technique is also applied to the topic of initial sample size determination.