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# DEPARTMENT OF MATHEMATICS MASTER THESIS DEFENSE

**SPEAKER:** Edward Tawiah, Graduate Student  
Department of Mathematics

**Title:** Factors Contributing to the Success of  
Small Businesses Using Structural Equation  
Modeling – A Statistical Framework

**Date:** Friday, April 28, 2017

**Time:** 11:30 am – 12:30 pm

**Place:** MCS 213

**ABSTRACT:** Structural Equation Modeling (SEM) is a family of statistical tools used to analyze relationships between observed and unobserved (latent) variables. Until recently, regression analysis dominated when it came to accessing the impact or effect of a set of independent variables (IV) on some dependent variable (DV). But not all variables can be directly measured. This is where SEM comes in. In this framework, we discuss the concept of SEM and apply it to determine the factors which affect the success of small businesses. We use latent variables such as ease of doing business and capital resource as IV to measure the latent variable success of observed variables. We simulate data based on published measurement instruments and use these to demonstrate SEM to determine the factors which influence success of small businesses. In the analysis, we examine paths of influence and the strength of these paths in comparison to other factors and how significant these paths of influence are. The results are illustrated through tables and figures. We used R, the free statistical software, to carry out all analyses.