

**CCSU**  
**DEPARTMENT OF MATHEMATICAL SCIENCES**  
**VIRTUAL COLLOQUIUM**

Friday, September 18  
3:00 – 4:00 PM

<https://ccsu.webex.com/meet/gotchev>

**PROBABILITY OR ODDS?**  
**(CONTINUED... CONTINUED...)**

**GURBAKHSHASH SINGH**

**CENTRAL CONNECTICUT STATE UNIVERSITY**

**Abstract:** This is a continuation of our adventure into building models for odds and probabilities, with a focus on methods in health and medical sciences. Modeling binary outcomes based on covariates will be discussed. We will begin with the use of logistic regression for the estimation of odds and the use of log-binomial (LB) regression for the estimation of probabilities. We will extend the discussion to modeling ordinal outcomes based on covariates, with a focus on the proportional odds model (POM) and proportional probability model (PPM).

This talk will start with an introduction to probability and odds, and then bridge to generalized linear models for the estimation of odds and probabilities. Recent articles have noted the inaccurate use and interpretation of odds as a probability, but this also passes to the interpretation of odds ratios from a logistic regression and POM. To avoid this misinterpretation, we will discuss LB regression and the PPM – their use and important considerations. The goal is to raise awareness of potential challenges of each regression model. Several results presented are in collaboration with Dr. Gordon H. Fick from the University of Calgary.

This talk is for an audience with an introductory understanding of probability and linear regression models. Attendance of the previous talks is not required.

**For further information:**  
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