

# GRADUATE SEMINAR

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## A Construction of Asymptotic Confidence Ellipses for Pathogen Parameters of Beta-Poisson Dose-Response Model

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**Friday, April 24, 2020**

**9:00 a.m.**

**Live Via Zoom**

**Abstract:** Beta-Poisson model is widely used parametric dose response models in microbial risk assessment. The establishment of the Method of Moments and the Method of Maximum Likelihood for parameter estimation do not work directly for a construction of a confidence ellipse. Therefore, we need to discover a suitable approximate distribution function of the Beta-Poisson Dose-Response model first. This talk is going to introduce the way of deriving the Maximum Likelihood estimates for the approximate model and construction of the Fisher information matrix. And based on the work of previous students, a normal approximation that gives confidence regions for parameters of the approximate Beta-Poisson dose-response model can be constructed. And then by using R programming, simulations can be applied to test findings from the theoretical work.

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