GRADUATE SEMINAR

Hira Nadeem

Cross-Product Ratio Calculation Under Different Sampling Schemes in Clinical Trials – Case Study of CYP-GUIDES Trial

PhD Student supervised by Dr. Ejaz Ahmed and Dr. Andrei Volodin

Date: June 27th, 2022
Time: 3:30 – 4:30 pm
Location: Math Lounge
and
https://uregina-ca.zoom.us/j/94125367372

Abstract: A successful clinical trial requires efficient strategies for enrolling and retaining the study participants. Therefore, the paper focuses on the simple idea of participant enrollment using Bernoulli samples since it is cost effective. The participants are enrolled in the clinical trials using the Direct or Inverse Binomial sampling schemes and the point estimate for the cross-product ratio $\rho = \frac{p_1(1-p_2)}{p_2(1-p_1)}$ is calculated. Prior studies in this domain indicate that the special case of the Direct-Inverse sampling scheme works the best, where the number of successes in the Direct sampling scheme is used in the second sampling scheme of the Inverse binomial scheme. Asymptotic confidence intervals are constructed. We present estimations of the coverage probability and interval width in tables. In the last section, CYP-GUIDES case study is discussed where the standard and genetically guided therapy are compared and estimates for the cross-product ratio are presented and interpreted when the participants are enrolled according to the special case of Direct-Inverse sampling scheme.

University of Regina

Mathematics and Statistics