

# GRADUATE SEMINAR

**Hira Nadeem**

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

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Dr. Andrei Volodin*

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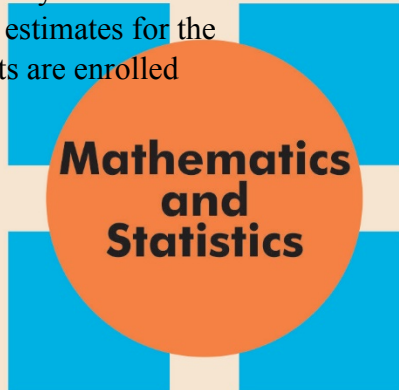
Time: 3:30 – 4:30 pm

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.

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