BGSU Department of Mathematics and Statistics

BOWLING GREEN STATE UNIVERSITY

Weekly Calendar – Spring Semester 2025
Week 5 – February 10 – 14

Monday, February 10	**Undergraduate Committee** 3:30pm – 4:20pm, McLeod Hall 400
Tuesday, February 11	**Graduate Student Seminar** 11:30am – 12:15pm, McLeod Hall 459 Speaker: Nick Long Title: Primer to Representation Theory
Wednesday, February 12	**Graduate Committee** 11:30am – 12:30pm, McLeod Hall 459 **Peer Mentor Meeting** 12:30pm – 1:20pm, McLeod Hall 400 **Analysis Reading Seminar** 2:30pm – 3:30pm, McLeod Hall 459 Speaker: Salma Hasannejad Title: Universal Functions for the Composition Operator **Peer Mentor Meetings** 3:30pm – 4:20pm, McLeod Hall 459, 238 & 302 **Advisory Committee** 3:30pm – 4:30pm, McLeod Hall 400
Thursday, February 13	**TTF Candidate Open Meeting with Faculty/Graduate Students** 10:30am – 11:00am, McLeod Hall 459 **TTF Candidate Teaching Presentation** 1:30pm – 2:00pm, McLeod Hall 459 **TTF Candidate Open Meeting with Faculty/Graduate Students** 2:00pm – 2:45pm, McLeod Hall 459 **TTF Candidate Research Presentation** 3:00pm – 4:00pm, McLeod Hall 459 Title: Worst-Case Reinsurance Strategy with Likelihood Ratio Uncertainty
Friday, February 14	**Peer Mentor Seminar** 3:30pm – 5:15pm, McLeod Hall 459

ABSTRACT

TTF Candidate Research Presentation

Title: Worst-Case Reinsurance Strategy with Likelihood Ratio Uncertainty

Abstract: We investigate the optimal reinsurance strategy for an insurer in the worst- case scenario. An optimal reinsurance problem is a risk sharing problem faced by an insurer and a reinsurer in the reinsurance market. Since only partial information on the underlying probability measure is available, we assume that an insurer defines uncertainty sets by using the likelihood ratio between the reference probability measure and an alternative probability measure, and then, considers the robust risk measure in the worst-case scenario. In our work, we first focus on a non-cooperative model, and characterize the relation between the optimal reinsurance strategies in the regular-case when the reference probability measure is used and in the worst-case scenario. The insurer can further assess the inadequacy of her reinsurance coverage and the shortage of her capital reserve in the worst-case scenario. Use those results, we solve the optimal reinsurance strategy when the insurer uses an expectile risk measure, which is a popular risk measure in the literature of insurance. Second, we propose a cooperative model, which can be viewed as a general risk sharing problem between two agents in a comonotonic market. In this model, we characterize the optimal reinsurance strategy and determine the worst-case risk measure value.