GRADUATE SEMINAR

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Generalization of the Hoeffding Inequality for a class of Extended Acceptable Random Variables

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Abstract: In the rapidly changing environment of insurance portfolios, traditional statistical approaches based on independent random variables are falling short. The focus of this seminar is to present a significant advancement in insurance mathematics: the generalization of the Hoeffding Inequality for a novel class of dependent structures known as Extended Acceptable (EA) random variables. This extension has profound implications for calculating the "Minimum Premium Rate," a cornerstone of insurance pricing strategy. By incorporating the EA dependency structure into the Hoeffding Inequality, we offer a more accurate and encompassing model that better reflects the realities of interdependent insurance portfolios. This innovation not only provides a new upper bound for the minimum premium rate but also brings us closer to achieving a "Probability of Non-Ruin" close to one, an essential indicator of an insurer's financial stability. The seminar will delve into the mathematical intricacies of this extension and discuss its overarching significance for modern insurance companies.

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Mathematics and Statistics