

# The 20<sup>th</sup> M.Sc. Day



Schedule of Events .....	2
Titles and Abstracts.....	3
Yuxue Zhang, Actuarial Science, supervised by Dr. Shu Li .....	3
Bernard Emmanuel Bartels, Statistics, supervised by Dr. Kristina Sendova.....	3
Parinaz Zarei, Financial Modelling, supervised by Dr. Kristina Sendova.....	3
Aleksandr Chen, Financial Modelling, supervised by Dr. Ricardas Zitikis .....	4
Shumin Chen, Financial Modelling, supervised by Dr. Cristián Bravo Román .....	4
Wen-Zhan Cao, Financial Modelling, supervised by Dr. Marcos Escobar-Anel.....	4
Ziyuan Fang, Financial Modelling, supervised by Dr. Marcos Escobar-Anel .....	5
Hongchen Liu, Financial Modelling, supervised by Dr. Marcos Escobar-Anel .....	5
¥ç ç ¥ O ç ç r 3 r ç 9 ç -Anel .....	6
Xiangshi Li, Statistics, supervised by Dr. Wenqing He .....	6
Jiachen Pan, Statistics, supervised by Dr. Hyukjun Gweon .....	7
Lin He, Statistics, supervised by Dr. Hyukjun Gweon and Dr. Shu Li .....	7
Aryan Rezanezhad, Statistics, supervised by Dr. Grace Yi.....	8
Zihan Zhang, Statistics, supervised by Dr. Grace Yi .....	8
Kasiwatte Kankanamge Dinithi De Silva, Statistics, supervised by Dr. Douglas Woolford.....	8
Luc John-Paul Benoit, Statistics - Hazards, Risks and Resilience, supervised by Dr. Douglas Woolford .....	9
Jessica Dobbin, Statistics - Hazards, Risks and Resilience, supervised by Dr. Douglas Woolford ..	9



## Titles and Abstracts

Yuxue Zhang, Actuarial Science, supervised by Dr. Shu Li

### Equity-Linked Insurance in Financial Planning Under CRRA Utility

Segregated funds, or the equity-linked insurance, provide guaranteed payments for policyholder's funds, and are considered as an option in the performance of the segregated funds comparing to the mutual funds, under the constant relative risk aversion (CRRA) utility function. We extend the results in Huang, Milevsky and Wang (2008), and analyze the optimal allocation problem for family investing in segregated funds, insurance both before and after retirement. Our numerical results show that the utility function on overall consumption, under the portfolio with segregated funds, could be higher than that with mutual -linked insurance as a vehicle for retirement planning.

Bernard Emmanuel Bartels, Statistics, supervised by Dr. Kristina Sendova

### The Impact of Marital Status on Longevity: A Comparative Analysis of JointLife and SingleLife Mortality Rates

Joint-life tables provide insights into the mortality dynamics of individuals living in a couple, typically within the context of marriage or common-law. This project analyzes the Long Administrative Database (LAD) provided by Statistics Canada. We focus on data grouped by gender and marital status to investigate patterns in mortality rates of married or common-law individuals and compare with single individuals. The LAD comprises of a 20% sample of the Canadian population collected from yearly income tax returns.

Many previous studies consistently show that married individuals tend to have lower mortality rates comprehension of the reasons behind longevity patterns within marital contexts. Also, we aim to provide life tables to ensure accurately priced insurance policies for married and single individuals.

Parinaz Zarei, Financial Modelling, supervised by Dr. Kristina Sendova

### Analysis of the Financial Wellness of Canadian Households Using Regional Data

This project involves merging and analyzing three comprehensive datasets that were collected up to December 31, 2023. These datasets originate from Statistics Canada and have been provided to us by an industrial partner. The merged dataset enables us to examine certain aspects of the

Key variables include before-tax household income, after-tax household income, various forms of





ç ¥ ç - ¥ È ç È ç i ç -Wallis hypothesis tests to  
ç ç ç ç ç ç ç ç ç ç  
Additionally, we examine which sectors are more susceptible to ESG-related risks and analyze  
9¥Q ç I ç ç ç  
distribution of rating correlations within sectors to identify overarching patterns in ESG  
performance.

---

Sahand ¥ , Financial Modelling, supervised by Dr. Marcos Escobar-Anel

Ensuring and Optimizing CSR s (0)-1.2 (3>-0.6 <049503E0>66 <0116>2.9 <0132>10.52.9 <0131>8.5132>





Aryan Rezanezhad, Statistics, supervised by Dr. Grace Yi



may not be the case. With recent research on climate change projecting an increase in frequency,  
the risk to communities is projected to increase significantly.