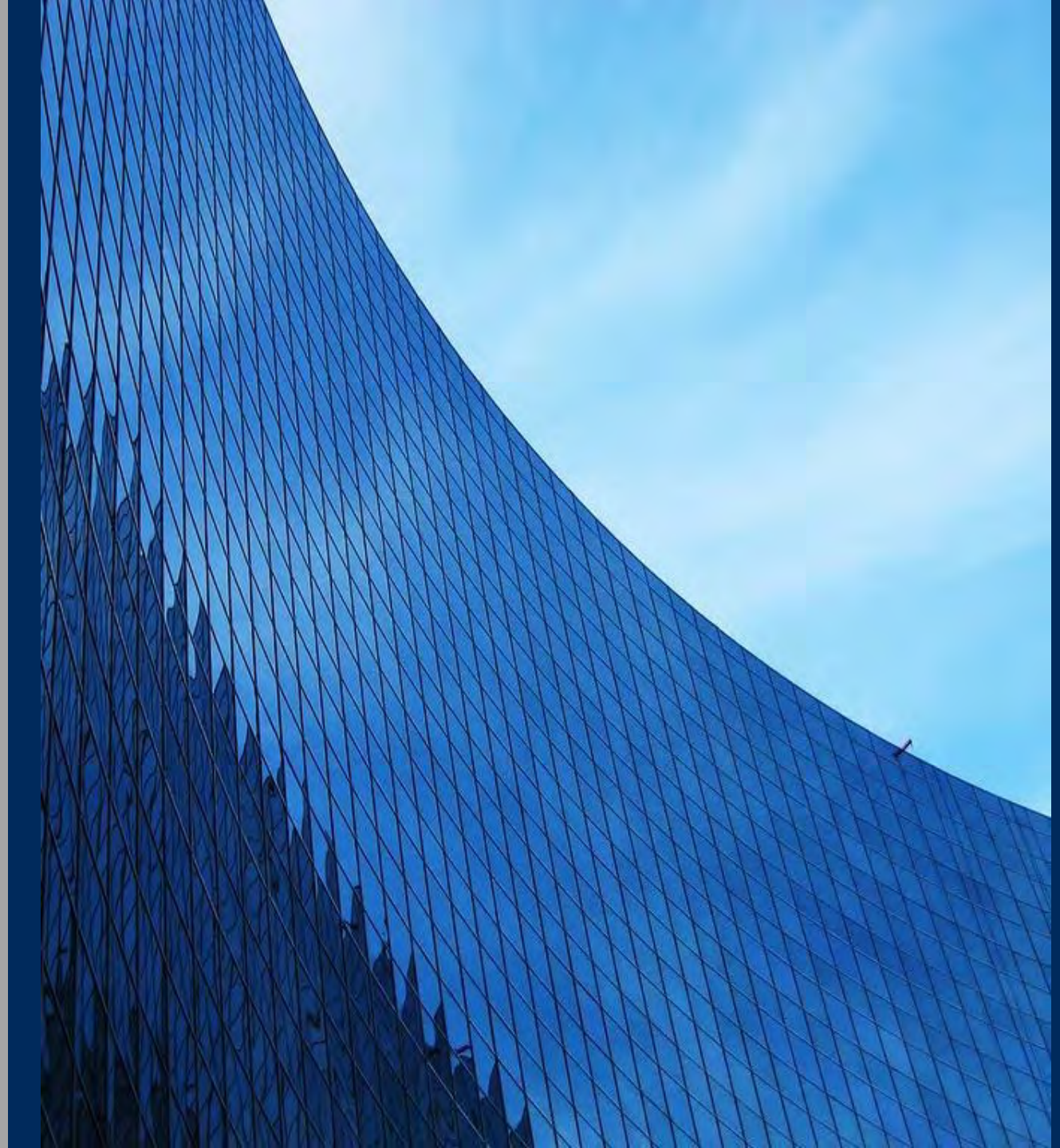


Master of Financial Insurance

A professional program founded on data science, finance and insurance.

mfi.utoronto.ca

Statistical Sciences
UNIVERSITY OF TORONTO

MASTER OF financial insurance

The MFI Team

Sarah Lee
Program Coordinator
sarahj.lee@utoronto.ca

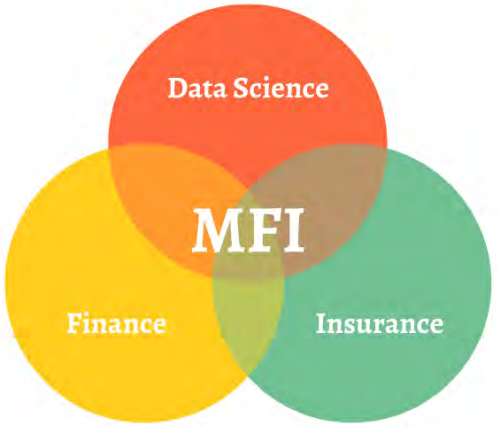
Professor Andrei Badescu
Program Director
andrei.badescu@utoronto.ca

Shari Kurgatnikov
Outreach & Internship Administrator
shari.kurgatnikov@utoronto.ca

Statistical Sciences
UNIVERSITY OF TORONTO

Program Overview

- The Master of Financial Insurance (MFI) is a 1-year professional course-based masters
- The program focuses on the interface of **data science, finance, and insurance modelling** providing students with a sophisticated understanding of their **complex interaction**
- Number of courses taught by **industry professionals** and includes a paid internship



MFI: Where Finance, Insurance and Data Science Intersect

Statistical Sciences
UNIVERSITY OF TORONTO

Program Structure

TERM 1

(September - December)

Mathematically sophisticated and requires solid training in mathematics & statistics

TERM 2

(January – April)

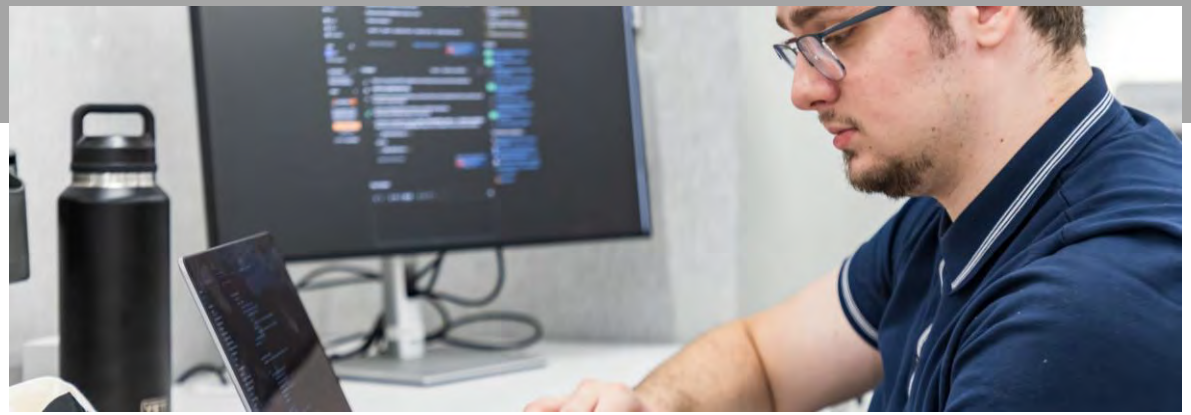
Applied coursework focused on practical issues and industry insights

TERM 3

(May – August)

Mandatory work term – minimum 16 weeks

Curriculum
Fall Term



Applied Probability for Mathematical Finance (0.5 FCE)

Stochastic calculus, financial derivatives: equity, interest rate and commodities, stochastic volatility and jumps.

Applied Time-Series Analysis (0.5 FCE)

Time series modelling including AR, MA, ARMA, ARCH, GARCH, VAR, co-integration, non-linear models, quantile regression, volatility forecasting.

Data Science for Risk Modelling (0.5 FCE)

Probability and stochastic loss models and estimation, multi-class logistic regression, generalized linear model, Expectation-Maximization, Hidden Markov models, Neural nets, RNNs, Auto-encoders.

Life Insurance Mathematics (0.5 FCE)

Life insurance & annuity valuation, premium reserving, multiple decrements, multiple life insurance, expense loading, pension mathematics.

Curriculum
Winter/Spring Term

Insurance Risk Management (0.5 FCE)

Insurance and annuity guarantees, asset-liability management, regulatory and economic capital, insurance securitization, longevity bonds & derivatives, reinsurance, CAT bonds and options.

Finance & Insurance Case Studies (0.5 FCE)

Industrial case studies, e.g. Solvency II, Pension Benefits Act, Valuing and Managing Complex Annuity Riders.

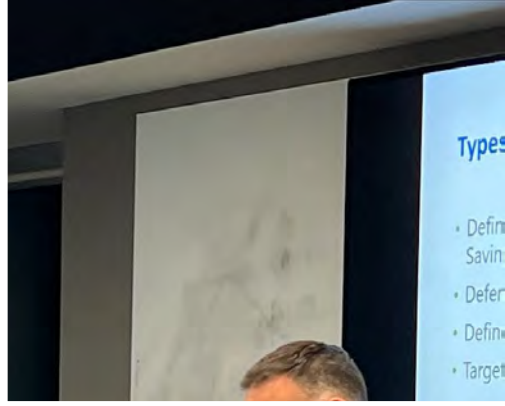
Data Analytics in Practice (0.25 FCE)

Machine and statistical learning methods; building loss models; techniques and practical know-how to present results to practitioners.

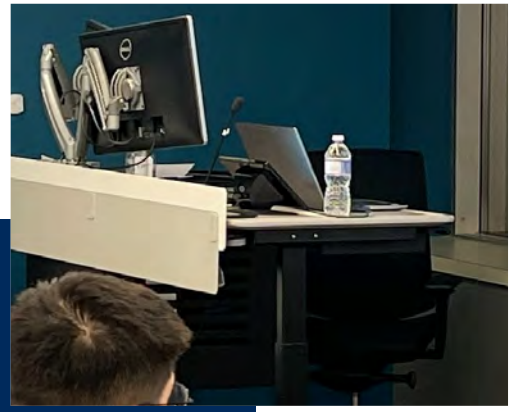
Numerical Methods for Finance (0.5 FCE)

Monte Carlo methods, simulating SDEs, control variates, Brownian bridges, PDEs and finite difference methods.

Guest Seminar Series (0.5 FCE)



Current topics in finance and insurance, e.g., pensions, valuation, risk management, credit risk, sustainability, regulation and accounting.



Sample Talk Titles:

- **Climate Change Macro Perspective**
- **IFRS 9 Accounting Regime Introduction**
- **Global Foreign Exchange Markets**
- **Cryptocurrencies and Digital Assets: Market Structure, Risks, and Opportunities**
- **An Introduction to Systemic Risk – Are we ready for the next crisis?**
- **Pricing Simulation**
- **Control & Governance of Complex Cashflow Projection Models**
- **Capital Management for Modern Commercial Banks**
- **Trade Credit Insurance & Reinsurance**
- **Retail Credit Risk Modelling**
- **Regulatory Capital in the Canadian Life Insurance Industry**
- **Pension Funding and Valuation**

Statistical Sciences
UNIVERSITY OF TORONTO

Course Elective (0.25 FCE)



- STA4517H - Foundations & Trends in Causal Interference
- **STA4530H – Derivatives for Institutional Investing**
- STA4246H – Research Topics in Mathematical Finance
- STA4528H – Dependence Modelling with application to Risk Management
- STA4525H – Demographic Methods
- STA4526H – Stochastic Control & Applications in Finance
- STA4522H - The Measurement of Statistical Evidence
- STA4517H – Information Visualization
- STA4514H – Modelling and Analysis of Spatially Correlated Data
- STA4513H – Statistical Models of Networks, Graphs, and Other Relational Structures
- STA4510H – Insurance Risk Models II
- STA4509H – Insurance Risk Models I
- STA4508H – Topics in Likelihood Inference
- STA4506H – Non-stationary Time Series Analysis
- STA4505H – Applied Stochastic Control: High Frequency and Algorithmic Trading
- STA4504H – An Introduction to Bootstrap Methods
- STA4503H – Advanced Monte Carlo Methods and Applications
- STA4501H – Functional Data Analysis and Related Topics
- STA4500H – Statistical Dependence: Copula Models and Beyond


Elective Course (0.25 FCE) from STA 45##H level courses

[not all courses offered every year]

https://www.statistics.utoronto.ca/curriculum-courses/

Statistical Sciences
UNIVERSITY OF TORONTO

NEW COURSE!!
Business Fundamentals
(0.5 FCE)




Professional Skills for Quantitative Minds:
Designed as an integral part of the MFI comprehensive training, this course aims to build the essential soft skills needed for workplace success.

Suite of topics will cover:

Public Speaking & Storytelling
Presentation Skills to Different Audiences
Networking 101
1:1 Coaching Support
Resume & Cover Letter Bootcamp
LinkedIn Profile Development
Culture, Connection, & Communication for the Workplace
Interview Skills

Statistical Sciences
UNIVERSITY OF TORONTO

MASTER OF financial insurance

Qualifications

A 4-year **Bachelor's degree** from a recognized post-secondary institution

sgs.utoronto.ca/international-credentials-equivalencies-ice-database (ICED)

Strong quantitative background

Statistics; Mathematics; Actuarial Science; Economics; Engineering; Computer Science; Finance etc.

Minimum Grade: equivalent of University of Toronto **B+ (3.3/4.0 GPA/77%) in higher level courses (final year)**

Achieved **English Language Proficiency (if applicable)**

- according to the requirements set by the School of Graduate Studies, TOEFL; IELTS; Cambridge English; COPE; CAEL; UofT Academic Preparation Course-Level 60 (Advanced)

MASTER OF financial insurance

Application Documents

Application Documentation:

- **A letter of intent** or personal statement (no more than 500 words)
- **Electronic copies of transcripts**
- **Three referees (contact information)**
- **CV / résumé**
- Shortlisted applicants are requested for **interview.**

Timelines:

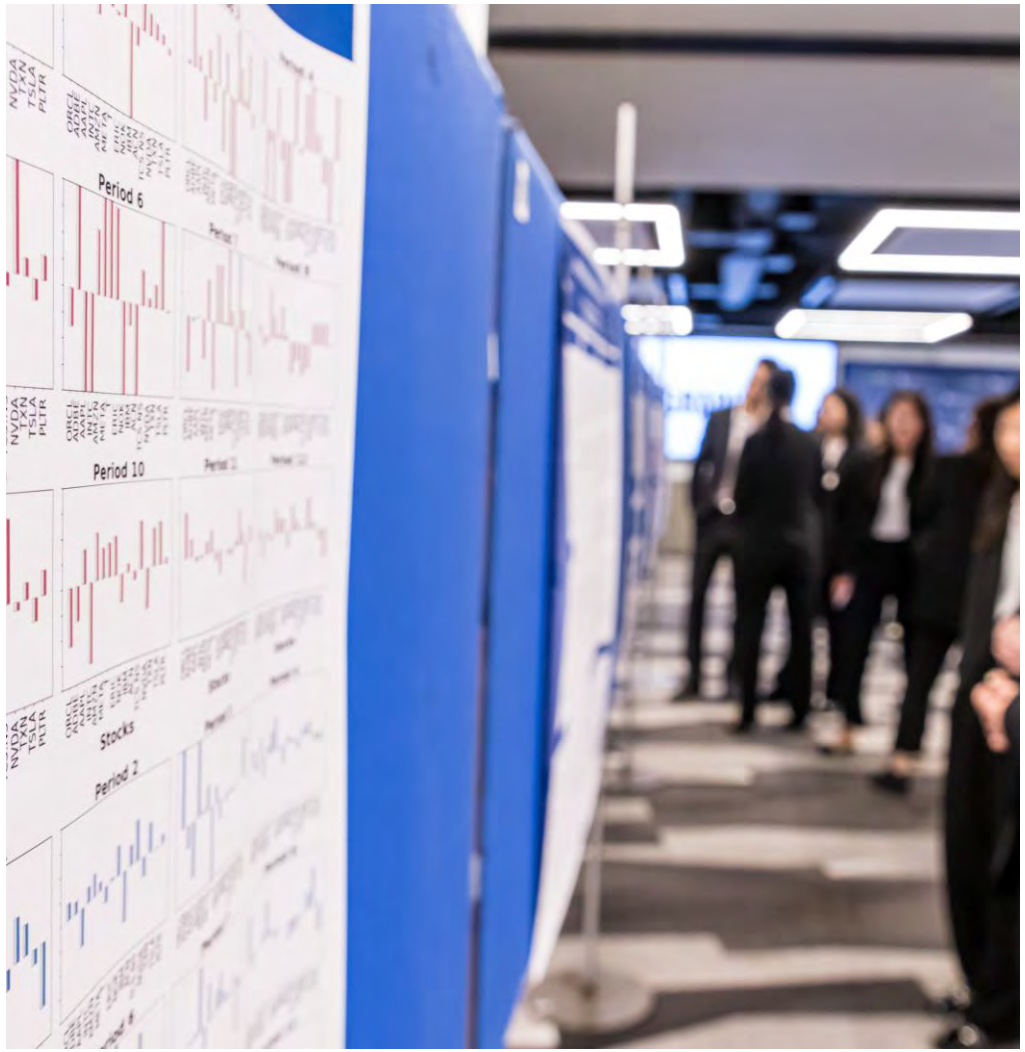
- Application Deadline: January 6, 2025
- Interviews Scheduled: February 2025
- Offers of Admission: from March 1, 2025

MASTER OF financial insurance

Program Costs

Domestic	
Tuition	$26,780.00
Incidental	$2,082.28
Placement Fee	$1764.60
System Access	$59.25
Totals	**$30,686.13**

International	
Tuition	$59,090.00
Incidental	$2,082.28
Placement Fee	$1764.60
System Access	$59.25
UHIP	$756.00
Totals	**$63,752.13**



Non-Refundable Deposit
$2,900 Domestic Students
$4,900 International Students

Statistical Sciences
UNIVERSITY OF TORONTO

MASTER OF financial insurance

Funding

- Discretionary Entrance Award
- MFI Equity Award – financial support for students from underrepresented groups
- NEW!! Canadian Excellence Award – financial support for high achieving Canadian citizens

- OSAP (or equivalent) – domestic students
- Student credit lines – domestic or international (Prodigy & MPower)
- TA Positions – students eligible to apply
- Paid Internship
  16-weeks or longer

https://www.statistics.utoronto.ca/MFI-Financial-Information-and-Awards

MASTER OF financial insurance

Internship

May 1 - August 31 (16 weeks minimum duration)

Paid Placement or Faculty Project

Report & Presentation at the Grad Expo

Statistical Sciences
UNIVERSITY OF TORONTO

MASTER OF financial insurance

Professional Development

Professional Development Course

Résumé and Cover Letter

Culture & Communication

Networking/LinkedIn

Interview Techniques

Presentation Skills and more!

Networking Events

MFI Reception

Employer Information Sessions

Guest Lectures

Graduate EXPO

Alumni Network

Mentorship Program

Alumni Panels

Mock Interviews

Industry Connections

AIMA

Fields Institute Seminar Series

CAASA

IAQF

ASNA Conference

Statistical Sciences
UNIVERSITY OF TORONTO

MASTER OF financial insurance

Industry Partners

Q & A

Student Break Out Rooms