Brief Course Outline

Course Title:	**High-Frequency Trading & Market Microstructure**
Course Number and Section	ECONOMIC 3394B 550
Instructor Name(s):	BO LIU
Instructor Email(s):	Bo.Liu@uwo.ca

Disclaimer: Information in the brief course outline is subject to change. The syllabus posted on OWL Brightspace is the official and authoritative source of information for the course.

Course Description:

This course offers an in-depth exploration of financial market microstructure, focusing on the mechanisms and dynamics that govern the functioning of financial markets. It emphasizes understanding the theoretical models, empirical methods, and institutional details necessary to analyze market efficiency, liquidity, and price formation.
The course is structured around key topics such as dealer models, limit order books, liquidity measures, and high-frequency trading. Students will delve into foundational models like Glosten-Milgrom and Kyle's framework, while also exploring contemporary issues, including market fragmentation, transparency, and algorithmic trading.
As the course progresses, students will also be introduced to advanced tools in high-frequency financial econometrics. Topics such as Brownian motion, stochastic calculus, Itô processes, and continuous-time modeling will be incorporated to support a deeper understanding of high-frequency price dynamics, volatility estimation, and market microstructure noise. These mathematical foundations will allow students to connect classic microstructure theories with modern empirical techniques used in analyzing ultra-high-frequency data.

Learning Outcomes: one outcome per entry

• Develop a comprehensive understanding of the microstructure of financial markets, including key trading mechanisms, market participants, and their interactions.
• Master foundational models such as Glosten-Milgrom, Kyle's framework, and limit order books to analyze price formation and market liquidity.
• Gain the ability to critically evaluate market efficiency, transparency, and the impacts of market fragmentation on trading outcomes.
• Learn to measure and assess liquidity, including its determinants and implications for financial stability and asset pricing.
• Explore the role of technology in modern markets, including high-frequency trading and algorithmic strategies, and their regulatory challenges.
• Strengthen analytical skills through solving problem sets and applying theoretical models to empirical data.

• Build the expertise to critique financial market designs and propose improvements for enhanced efficiency and fairness.
• Acquire foundational knowledge of Brownian motion, stochastic calculus, and Itô processes to understand continuous-time models used in high-frequency financial econometrics.
• Apply advanced econometric techniques to high-frequency data, including volatility estimation, microstructure noise correction, and empirical evaluation of trading strategies.

Textbooks and Course Materials:

Required textbook: Market Liquidity: Theory, Evidence, and Policy, 2nd Edition, by Thierry Foucault, Marco Pagano, and Ailsa Röell (Oxford University Press).

Methods of Evaluation: one assignment per entry

Assignment	Due Date mm/dd/yy	Weight - %
Assignment 1	1/31/2026	15
Assignment 2	2/28/2026	15
Assignment 3	3/31/2026	15
Midterm	2/23/2026	25
Final	Exam Period	30

In solidarity with the Anishinaabe, Haudenosaunee, Lūnaapéewak, and Chonnonton peoples on whose traditional treaty and unceded territories this course is shared.

Wednesday, December 10, 2025

Huron Brief Course Outline

In-course Costs $052.00

For Textbooks and Course Materials (below), you are required to include the cost of each textbook or other learning material.

Note whether there are any restrictions that would prevent a student from using a second-hand copy. Here is some suggested text:

- Required textbook: [author, title, edition, publisher, date]. Cost: [insert amount].
    - Or include the weblink of the textbook's publisher site that includes the cost information.
- Students need to purchase this edition. Second-hand or older editions will not be sufficient.
- OR Students are welcome to purchase second-hand or earlier editions of this textbook.
- This course has an optional field trip that costs [insert amount].
- This course has a required field component that costs [insert amount].