FIN 531
Market Microstructure
Module IV, 2018-2019

Course Information

Instructor: **Daniel Sungyeon Kim**
Office: PHBS Building, Room 745
Phone: +86 (755) 2603-5295
Email: kimds@phbs.pku.edu.cn
Office Hour: Tuesday and Friday, 09:00-10:00

Teaching Assistant: **TBA**
Phone:
Email:

Classes:
Lectures: Tuesday and Friday, 13:30-15:20
Venue:

Course Website:
http://www.danskim.com

1. Course Description

1.1 Context

Course overview:
Welcome to Market Microstructure at Peking University HSBC Business School! For simplicity, most finance courses assume that securities trade in an idealized costless, frictionless world. In reality there are many frictions: bid-ask spreads, trade impact on price, brokerage commissions, quantity limitations, time delays, etc. This field of study is known as "market microstructure." Microstructure has grown rapidly into one of the largest sub-disciplines of finance and has had a profound impact on the real world. For example, one research study uncovered evidence of implicit collusion by NASDAQ dealers. This led to a class action lawsuit that was eventually settled when 30 brokerage firms paid a total of $1 billion in damages!

Prerequisites:

N/A

1.2 Textbooks and Reading Materials

Textbooks
None
Reference books
Market Microstructure in Practice, by Charles-Albert Lehalle and Sophie Laruelle (LL)
Algorithmic and High-Frequency Trading by Álvaro Cartea, Sebastian Jaimungal, and José Penalva (CJP)
Algorithmic Trading & DMA by Johnson, 4Myeloma Press

Other Readings

Lecture notes, assignments, and other useful information will be posted on the course web page at http://www.danskim.com/mm.html. ***You are expected to download and print the required material before coming to the class.***

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	√
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	√
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	√
	2.2. Students will be able to apply leadership theories and related skills.	
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	
	3.2. Our students will practice ethics in the duration of the program.	
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	√
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	√
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	√
	5.3. Our students will demonstrate competency in critical thinking.	√

2.2 Course specific objectives

- Understand how financial markets are organized
- Analyze trade and quotes information
- Understand the role of informed trading
- Understand how financial markets are evolving

2.3 Assessment/Grading Details

Assessment task	**Weighting**
Final project	25%
In-class and take home exercises	20%
Participation	15%
Mid-term Exam	40%
Total	***100%***

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics, Teaching and Assessment Schedule

Class Number	*Topics Covered*
1 (Apr 26)	<u>Introduction I</u> • Discussion of syllabus • Introduction to Market microstructure • Overview of basic concepts • Global markets
2 (May 7)	<u>Introduction II</u> • Order execution methods • Intro to algorithmic trading • Price discovery • Market structure and design • Transaction cost
3 (May 10)	<u>Orders</u> • Definition of orders • Limit order book market • Call markets
4 (May 14)	<u>Spread and transaction costs</u> • Bid-Ask spread • Spread decomposition • Transaction cost measurements • Implementation shortfall • National market system • PIN
5 (May 17)	<u>Market Manipulation and Insider Trading</u> • Jonathan Lebed • What is insider trading • Pros and Cons of insider trading • Informed trading Video: *Next: The Future Just Happened*
6 (May 21)	<u>Brokers</u> • Brokers • Illegal things brokers may do Video: *Floored*
7 (May 24)	<u>Short Selling and arbitrage</u> • Short selling • Arguments against short selling • Arbitrage • Pairs trading

Class Number	*Topics Covered*
8 (May 28)	Algorithmic trading • Impact-driven algos • Cost-driven algos • Liquidity-driven algos
9 (May 31)	Optimal trading strategies • Difficulty of orders • Efficient trading frontier • Implementing trading strategies • Tactical-level algorithmic trading Order placements • Price formation • Order matching priorities • Order placement decisions
10 (Jun 4)	High frequency trading • Latency arbitrage Video: *Flash boys*
11 (Jun 5)	Ghost exchange • Technical glitches • Hidden orders Video: *Ghost Exchange*
12 (Jun 11)	Review for midterm
Ex (Jun 14)	**MIDTERM**
13 (Jun 18)	Crashes • 1929 crash • 1987 crash • Flash crash
14 (Jun 21)	Deception and bias • Spam mails • Left-digit effect • Sensation seeking • Attention-getting stocks • Trading as gambling
Class Number	
15 (Jun 25)	Other topics • Bond market in US • Transparency in bond market

	• Competition in options market • Experiments on informed vs. uninformed • Cross listings • NYSE Openbook • 24-hour trading **FINAL PROJECT DUE**
Pr (Jun 30) **14:00-18:00**	Group Presentations ***MANDATORY ATTENDANCE DAY***